VOLUME 13 NUMBER 7

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The Federal Food, Drug, and Cosmetic Act of the United States . . . . . .
CHARLES WESLEY DUNN

Who Will Be First? . . . . . .
ALBERT H. HOLLAND, JR., M. D.

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A COMMERCE CLEARING HOUSE PUBLICATION
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The editorial policy of this JOURNAL is to record the progress of the law in the field of food, drugs and cosmetics, and to provide a constructive discussion of it, according to the highest professional standards. The FOOD DRUG COSMETIC LAW JOURNAL is the only forum for current discussion of such law and it renders an important public service, for it is an invaluable means (1) to create a better knowledge and understanding of food, drug and cosmetic law, (2) to promote its due operation and development and thus (3) to effectuate its great remedial purposes. In short: While this law receives normal legal, administrative and judicial consideration, there remains a basic need for its appropriate study as a fundamental law of the land; the JOURNAL is designed to satisfy that need. The editorial policy also is to allow frank discussion of food-drug-cosmetic issues. The views stated are those of the contributors and not necessarily those of the publishers. On this basis, contributions and comments are invited.

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REPORTS

TO THE READER

About the Authors

Featured this month is a contribution by **Charles Wesley Dunn,** of New York City—"The Federal Food, Drug, and Cosmetic Act of the United States." This paper, which presents a brief survey of the Act's safe-food-additive law, together with a pretesting amendment of it, was delivered on July 17, at Paris, France. It was a part of Symposium IV (on "foreign food additives") of the International Commission for Agricultural Industries in collaboration with the Permanent International Bureau of Analytical Chemistry in Western Europe.

Mr. Dunn, who is president of The Food Law Institute and chairman of the editorial advisory board of this magazine, is so well known to our readers as to need no introduction. A short statement as to some of the positions he holds can be found on the opposite page.

Dr. Albert H. Holland, Jr., M. D., whose recent speech before The Proprietary Association—"Who Will Be First?"—appears in this July JOURNAL, was appointed medical director of the Food and Drug Administration in March, 1954. As head of the Administration's Division of Medicine, Dr. Holland is responsible for advising the agency on all medical questions involved in enforcement of the Federal Food, Drug, and Cosmetic Act. The division also assists in developing medical evidence in court cases involving adulterated and misbranded products, and it administers the new-drug provisions of the Act.

Before joining FDA, Dr. Holland was medical director of the Armour Laboratories, Chicago. Before his association with Armour, which began in 1951, he had been director of the office of research and medicine at the Atomic Energy Commission's Oak Ridge (Tennessee) Operations. Earlier, he had been medical advisor to the Manhattan Engineering District project at Oak Ridge, having been assigned originally by the United States Army as medical liaison officer. Dr. Holland's service at Oak Ridge covered a period of approximately four years.

Dr. Holland is a graduate of Valley Forge Military Academy; the Brothers College at Madison, New Jersey; and the New York University College of Medicine, where he was president of the 1944 graduating class. He interned in the New York Post-Graduate Hospital. After internship, he held an assistant residency at Memorial Hospital and then returned to New York Post-Graduate Hospital as resident in internal medicine. He left that position to enter service in the Army Medical Corps.

He is the son of the late Judge Albert H. Holland of the Court of Common Pleas, Morris County, New Jersey.

The continuing feature "Chistopher Comments," written by **Thomas W. Christopher,** associate dean and professor of law at Emory University, also appears, as does "The Scientists' Forum," edited by **Bernard L. Oser,** director of Food and Drug Research Laboratories, Inc. This month's "forum" is based on a brand-new statement of the Food Protection Committee, Food and Nutrition Board of the National Research Council.

CHRISTOPHER COMMENTS

Thomas W. Christopher is associate dean and professor of law at Emory University, Atlanta, Georgia.

Res Judicata.—A claimant, in a food and drug seizure for misbranding, pleaded *res judicata*, based on a proceeding by the Post Office Department against a similar product.[1] The court rejected the plea, stating that "to constitute *res judicata* there must have been, prior to the instant suit (1) an adjudication (2) of the same issues here involved (3) between the same parties or their privies."

As to the first or prior adjudication, the Post Office matter had ended in an "affidavit of agreement"; this was not an adjudication of any *res* but a mere settlement or adjustment. As to the second requirement, the issues were different, as no intentional fraud was there involved; also, there the government was alleging that the product was a "new drug," a completely different issue. On the third point, the facts did not show any privity between the claimants or defendants in the two cases.

This does not mean that a determination of the Post Office could not be *res judicata* in such cases. If there were an adjudication of the same issues between the same parties or their privies, the doctrine would apply. But due to differences in the two statutes, this is not likely to happen.

Certain principles are of importance in the pleading of *res judicata* in food and drug actions. One is that there is privity between officers of the same government. Another is that the decisions of agencies—the Federal Trade Commission, for example— may be *res judicata*.[2]

In one decision, the court held that a prior adjudication under the 1906 Act was not *res judicata* under the 1938 Act where the 1906 action involved fraud. The court also ruled that an FTC decision that the product alone was ineffective did not imply a holding that the product was helpful when used with other products.[3] On the other hand, if

(Continued on page 480)

[1] *U. S. v. 42 Jars of "Bee Royale Capsules,"* CCH Food Drug Cosmetic Law Reports ¶ 7438 (DC N. J., 1958).

[2] *U. S. v. Willard Tablet Company,* 141 F. (2d) 141 (CA-7, 1944).

[3] *U. S. v. Five Cases of "Capon Springs Water,"* 156 F. (2d) 493 (CA-2, 1946). Also see *U. S. v. Dr. Charles F. Kaadt,* 171 F. (2d) 600 (CA-7, 1948).

WASHINGTON–

ACTION AND NEWS

In the Food and Drug Administration

Monthly Report Issued June 27, 1958.—More than two million pounds of contaminated foods were seized in 69 court actions during May, the Food and Drug Administration announced on June 27. Owners voluntarily destroyed or converted to nonfood use an additional 1.2 million pounds, FDA inspectors reported.

More than 70 per cent of the volume seized comprised carload lots of rodent-contaminated wheat, barley and popcorn. Another carload was seized because it contained wheat contaminated with a poisonous pesticide.

In addition to destroying unfit merchandise, owners made improvements in 14 plants. These improvements included general cleanups, rodent-proofing, screening, building repairs, and installation of new equipment to facilitate sanitary maintenance and to provide better protection of raw materials. Among the improved plants were canneries, a poultry-processing plant, a corn-products factory, a bakery, a mill and commercial storage houses. Short weight in coffee and peanut butter, substitution of cheaper ingredients for the ones declared on labels of sorghum and salad oils, and failure to bear required labeling information figured in eight seizures.

Sixteen of the May seizures involved drugs and devices. Four products were charged with being below the standard claimed on the labels. Twelve were alleged to be misbranded with false and misleading claims.

Seized items included vibrating devices—a chair, a mattress, and three different portable units to be used as pillows or footrests. All were claimed to be effective treatments for disease conditions and in stimulating body functions. The Administration pointed out that devices of this type may be useful as an aid in relieving minor muscular aches and pains due to fatigue, and might be soothing or relaxing to the user, but that they should not be represented as disease cures or as weight reducers.

Another device applied stimulating voltages through four applicator pads. In addition to general claims of toning, strengthening and rejuvenating the body, the leaflet accompanying the devices recommended them for various therapeutic purposes.

One seizure included 39 items of crude drugs which had been repacked by a firm labeling some with claims for cancer, diabetes, flu, rheumatism, and other specific conditions for which they would be of no value. Labels for other products contained no statement of the conditions for which the drugs were intended. Statements of active ingredients and quantity of contents, as are required by law, were omitted.

In the Federal Trade Commission

Conspiring—Cosmetics.—A cosmetic company has been charged by the Federal Trade Commission with conspiring illegally with three competing cosmetic companies and four manufacturers of refillable lipstick cases to fix prices, eliminate competition and restrain trade. The charge allegedly stems from patent licensing arrangements between the respondents under two patents relating to refillable lipstick containers.

In the latter part of 1955 or early 1956, the complaint alleges, the cosmetic company and the four container manufacturers entered into an illegal restraint-of-trade conspiracy. They agreed to the following conditions, among others:

(1) Each of the four companies was appointed "agent-manufacturer" for the cosmetic company, to make the refillable cases and refills, purportedly in accordance with these patents, and was to issue nonexclusive licenses to cosmetic manufacturers to sell the products.

(2) The cosmetic company and these container manufacturers fixed not only the resale prices (covering sales to consumers as well as retailers) to be charged by the licensed cosmetic companies for the cases, but also for the nonpatented lipstick paste inserted by the licensees.

(3) They also fixed the royalty to be paid by the licensees to the cosmetic company through the container manufacturers, basing such payments on the retail price of the cases and the nonpatented lipstick inserts.

The competing cosmetic companies entered into licensing agreements under these arrangements, combining to further the conspiracy, the complaint charges. Pursuant to this unlawful combination, the complaint alleges, all respondents agreed—among other things—to resell the products, including the nonpatented lipstick inserts, at agreed-upon fixed minimum resale prices, and they adhered to such prices. (Issued June 16; released July 3, 1958.)—CCH TRADE REGULATION REPORTS ¶ 27,283.

Misrepresentation — Medicinal Preparations.—Four companies have agreed to discontinue representing that their medicinal preparations have any therapeutic effect in the treatment or prevention of Asian flu. (Released June 18, 1958.)—CCH TRADE REGULATION REPORTS ¶ 27,275.

Brokerage Fees—Seafood Products.—A fishery and its sales subsidiary are prohibited from giving favored customers discounts or allowances in lieu of brokerage on purchases for their own accounts for resale.

According to the Commission complaint, issued November 18, 1957, the fishery's pack of salmon and other seafood generally is sold by its subsidiary through other brokers. However, many direct sales have been made to chains and to large buying groups without utilizing brokers. These favored customers have been charged less than buyers who purchase through brokers, the complaint stated. Such reduced prices, it added, have reflected the 2½ per cent brokerage fee ordinarily paid.

The Commission's order forbids this practice in the future. (Released July 1, 1958.)—CCH TRADE REGULATION REPORTS ¶ 27,282.

A seafood-products brokerage firm has been charged with making illegal brokerage payments to some of its customers.

According to a Commission complaint, the firm—a primary broker—generally sells through hired field brokers, and its customary 5 per cent brokerage fee is split with the field broker handling the sale. The charge is that certain buyers have been granted substantial allowances, in violation of Robinson-Patman Section 2(c).—CCH TRADE REGULATION REPORTS ¶ 27,266.

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The Federal Food, Drug, and Cosmetic Act of the United States

By CHARLES WESLEY DUNN

Mr. Dunn Surveyed the Act's Safe-Food-Additive Law and Its Pretesting Amendment in a Symposium Held by the International Commission for Agricultural Industries and the Permanent International Bureau of Analytical Chemistry in Western Europe July 17 at Paris, France

Introduction

"Two historic trends dominate the modern progress of the pure food law, in its broad national and international conception. The first trend is for an advance safety control of food additives in general and chemical food additives in particular, by one plan or another. This trend is caused by the increasing use of chemicals in manufactured food, to preserve or improve it; and by the increasing development of agricultural pesticide chemicals, which introduce residue additives into natural food. The second trend is for a uniform law; and it is caused by the food industry need for such a law, in generally marketing its standard products.

"This paper will discuss the first trend with respect to the Federal Food, Drug, and Cosmetic Act of the United States (hereinafter called the FDC Act), mainly from the standpoint of its existing law against unsafe additives in manufactured food. You are familiar with the application of this trend to the parallel laws in Western Europe; and

The Author Heads The Food Law Institute, ABA's Food-Drug Law Division, and the Equivalent Section, New York State Bar

the recent Mexican regulation on food additives, promulgated on January 21, 1958, strikingly illustrates the related progress of such laws in Latin America.

"The second trend will be discussed in a paper at the September meeting of the American Chemical Society in Chicago. But it may be noted here that this trend is well illustrated by the current scientific action for a uniform food code in Western Europe and Latin America, respectively; and by the current general action in the United States for state (including municipal) legislation uniform with the FDC Act.

1

"The FDC Act, enacted in 1938 and since amended, includes our central national pure food law to protect the public health. For it is directed (*inter alia*) to prohibit any injurious adulteration or misbranding of any food in interstate and foreign commerce; and it jurisdictionally follows an interstate food down through its final intrastate retail to the consumer. Moreover it broadly defines food to mean any article for use as food or drink by man or a domestic animal; and also any article for use as a component of such food or drink.

"This Act is administered by the United States Secretary of Health, Education, and Welfare, through a Food and Drug Administration (hereinafter called the FDA) directed by a Commissioner of Food and Drugs. He institutes its enforcement through criminal, seizure and injunction proceedings in the federal courts, authorized by the Act; and an enforcement judgment therein is subject to judicial review, finally made by the United States Supreme Court. This review process is recorded to emphasize the fact that our government is one of law and not by man, pursuant to our free and just institutions. Hence

the administrator of this Act does not possess an autocratic administrative and enforcement power. For he cannot exceed the authority legislatively granted by this Act; and he cannot exercise it to deny the fundamental individual rights guaranteed by the Constitution of the United States.

"We should go on to say that the federal law of this Act is supported by analogous state legislation; and that it is complemented by other federal and state legislation, which additionally regulates food. And we should also observe that taken as a whole our pure food law occupies a high place in the jurisprudence of the United States, because it is essential to protect the public health. Indeed from this standpoint it may be classified as the most important commercial law to our people. That is why The Food Law Institute was created by leading food manufacturers as a public organization to develop required knowledge about this law by research studies of it, university education in it and other educational means of which this paper is an example.

2

"Because the FDC Act is directed to prohibit any injurious adulteration of food, it necessarily contains a law for safe food additives. But this law does not apply to additives in meats and meat food products. For they are instead regulated by the Federal Meat Inspection Act, through administrative permission by the United States Department of Agriculture. Annex A hereto lists the chemical additives which it permits in such meat food.

"In its application to additives in other food this law is divided into four parts, broadly speaking. They are:

"*Part One:* A basic law prohibiting any food additive which is a poisonous or deleterious substance; and it is essentially the one originally enacted by the initial Federal Food and Drugs Act of 1906. Therefore it is over fifty years old. But this law is subject to the exception of pesticide chemical additives in natural food, because they are instead regulated by a 1954 amendment of the FDC Act; and to another exception left relating to manufactured food. It is this: if a poisonous or deleterious substance is required in the production of such food or cannot be avoided by good manufacturing practice, its quantity may not exceed the limits of an administrative safety tolerance for it. The latter exception however is practically inoperative. For in the first place this exception was principally intended to deal

with pesticide chemicals in natural food, which are now regulated by the foregoing amendment of the FDC Act; and in the second place twenty years of administrative experience with this exception has disclosed no additive in manufactured food, which has met its strict conditional test. Hence the prohibition of this basic law is practically an absolute one applying to additives in manufactured food. Annexes B-D hereto partially list chemical additives in such food, which the FDA has evaluated as safe or questionable. We should go on to say that the FDC Act prohibits the use of any container for food, composed of any poisonous or deleterious substance which may render the contents injurious to health. We should also note that this Act contains a basic law against deceptive additives in manufactured food; that it requires a label declaration of additives in such food, except as provided; and that it also requires the labeling of such food to declare the fact that it contains artificial flavoring or coloring or a chemical preservative, except as provided.

"Part Two: A supplemental law added by the foregoing 1954 amendment of the FDC Act, which deals with poisonous or deleterious pesticide chemicals whose agricultural usefulness has been certified by the United States Secretary of Agriculture. It prohibits any residue from such a chemical in a raw agricultural commodity (principally a natural food such as a fruit or vegetable), unless its quantity is within the limits of an administrative safety tolerance for it; or unless the chemical is one which has been administratively exempted from that tolerance requirement. Over 1900 tolerances and exemptions have been administratively prescribed under this law to date. Annex F hereto contains a list of such tolerances and exemptions to March 1, 1958, published by the National Agricultural Chemicals Association. A few additional ones have been prescribed since then.

"Part Three: A further supplemental law prohibiting any food additive which is a coal-tar color, unless it has been administratively listed as harmless and suitable for use in food; subject to certain exceptions for citrus fruit generally and oranges in particular. The administrator is required to certify manufactured batches of coal-tar colors thus listed. Annex E hereto records such permitted coal-tar colors. We should note that this supplemental law is administered pursuant to the strict prohibition of the basic law against any poisonous or deleterious food additive. But the question is now before the United States Supreme Court whether the former law authorizes its adminis-

trator to prescribe safety tolerances for coal-tar colors, which will be decided later this year. We should also note that an industry bill is now before Congress which revises that law to authorize the administrative listing of any color additive (thus defined) as suitable for use in food and harmless under the conditions of its prescribed use; and also the administrative establishment of a safety tolerance for it. But the outlook is that this bill will not be enacted before Congress adjourns.

"*Part Four:* A further supplemental law authorizing its administrator to establish reasonable identity standards for any food except as provided, which is likewise administered pursuant to the strict prohibition of the basic law against any poisonous or deleterious food additive. This supplemental law has been used to permit certain harmless chemicals in standardized food, as optional ingredients. We planned to annex a list of them; but there was insufficient time to prepare it. Therefore reference is now made to the general chemical lists in Annexes B-D hereto.

"We should note here that the FDC Act also contains some miscellaneous provisions regulating food additives. For example, you will be interested to know, it provides that confectionery shall not contain any alcohol or nonnutritive article or substance, except harmless coloring and flavoring and resinous glaze not exceeding four-tenths of 1 per centum; and except natural gum and pectin. But it then provides that confectionery may contain less than one-half of 1 per centum by volume of alcohol derived solely from the use of flavoring extracts; and that chewing gum may contain harmless nonnutritive masticatory substances.

3

"The foregoing analysis of the FDC Act's safe food additive law establishes that its basic law is the paramount one, as its name implies. Such analysis also establishes that this basic law directly regulates all manufactured food other than that subject to the Federal Meat Inspection Act, except where it has an identity standard or contains a coal-tar color; and that it indirectly regulates such food in that exceptional area. Such analysis further establishes that this basic law fundamentally differs from its aforesaid supplemental laws in legislative policy, from a compliance and enforcement standpoint. For the latter laws authorize a government permission control of their food additives; whereas the former basic law prescribes an objective rule of conduct for the food manufacturing industry, which is that it cannot use any

poisonous or deleterious additive. As a result the food manufacturer has the responsibility of complying with this law and the government has the responsibility of enforcing it against its violation by him. The manufacturer's failure to comply with it is subject to criminal enforcement penalty of fine (up to $10,000) or imprisonment (up to 3 years) or both; and the food containing an unlawful additive is liable to civil enforcement seizure and injunction.

"That condition of the basic law compels the following comment: while this law is a strong one because and to the extent it absolutely prohibits any poisonous or deleterious additive in manufactured food, it otherwise invites serious criticism from the standpont of the consuming public intended to be fully protected by it. This is so for three (among other) reasons. The first reason is that this basic law is an *ex post facto* one from an enforcement standpoint, because its enforcement does not ordinarily begin until a food violating it has been sold and injuriously consumed. Moreover an administrative discovery of the violation may be unavoidably delayed; a successful enforcement judgment against it may be further unavoidably delayed; and this total delay may be long. The second reason is a related one. It is that in a judicial enforcement proceeding against a violation of this basic law the burden is on the government to prove that the additive in issue is a poisonous or deleterious substance, beyond a reasonable doubt in a criminal proceeding and by a preponderance of the evidence in a civil seizure or injunction proceeding; and it may be practically difficult or impossible for the government to achieve this degree of proof where that question of fact involves a legitimate and highly technical scientific controversy, decided by a lay jury. Which may be a normal situation in the case of chemical additives, for which this basic law has the greatest concern. But it should be noted, on the other hand, that the government has an advantageous position in an enforcement proceeding it institutes to protect the public health.

"These two reasons are legal ones, whereas the remaining third reason is a fundamental one. It is that this absolute basic law against any poisonous or deleterious additive in manufactured food is unreasonably inflexible, in its practical conception. For the fact is that such an additive may or may not be an unsafe substance, depending on the circumstances of its use; and that a technically poisonous or deleterious additive may be a safe and beneficial one, when its quantity is duly limited. The FDC Act recognizes this fact by authorizing safety tol-

erances for pesticide chemical residues in natural food; and its basic food additive law before us sought to implement this fact through the foregoing exception with respect to manufactured food, on a like safety tolerance basis. But that exception failed to do so, because it is made subject to a defeating condition. In short: the true pure food law test of an additive is whether it is physiologically safe for use in a food under the actual conditions of its use; whereby it deals with reality instead of a name. Such a test is both sufficiently strict and sufficiently flexible. Indeed this test is manifestly essential in an age where chemicals are increasingly used in manufactured food, for its constructive improvement beneficial to the consuming public; and a striking example of its need is the addition of chemical vitamins and minerals to essential foods to improve the national diet for a higher standard of public health, which is officially required by the FDC Act through identity standards for them.

4

"For these convincing reasons it was inevitable that Congress would sooner or later investigate the FDC Act's old and faulty basic law on safe additives in manufactured food, for its corrective amendment. An amendment which provides for the safety of an additive in such food, before it is sold and consumed; and which makes the test of its safety the fact that it is safe for use in such food, under the actual conditions of its use.

"This investigation was first made in 1950-1952 by a Special House Committee (known as the Delaney one) through public hearings, upon recommendation by the FDA. It was a broad investigation of chemicals in food and the Act's general regulation of them, since it was instituted before the 1954 pesticide chemical amendment was enacted. It resulted first in the enactment of that amendment; secondly in the recommendation of a further amendment requiring an industrial safety pretesting of chemical additives in manufactured food, where protectively required; and thirdly in the introduction of numerous House bills to implement that recommendation, of which the most important one (H. R. 6747 in the present Congress) is an administration bill drafted by the FDA and recommended by the United States Secretary of Health, Education, and Welfare. These bills were referred to the House Commerce Committee. Hence this investigation was completed by that Committee through public hearings on such bills in 1956-1958;

which only ended on April 15 last; and they principally dealt with chemical additives in manufactured food. We now await the Committee's report soon; it will probably recommend a broad amendment for an industrial safety pretesting of all additives in such food, where protectively necessary; and we hope that Congress will enact it, before adjourning in August.

"Consequently these hearings extended over a period of eight years. Testimony was given by the FDA and by responsible representatives of the food and chemical industries and the scientific and public health professions; and they thoroughly discussed all the questions presented by such a fundamental amendment. It suffices now to add three further comments on these hearings. The first comment is that they established a general agreement that the existing basic food additive law of this Act should be amended to require such an industrial safety pretesting of manufactured food additives; and also to require an industrial submittal of the pretesting and other relevant data to the administrator of this Act for his evaluation, to determine whether the additives are actually safe for use. The second comment is that these hearings revealed a difference of opinion on how a negative administrative evaluation of such an additive should be reviewed, to prevent a misadministration of the amendment. The FDA argued that this review should be the regular administrative-judicial one customarily authorized by this Act, pursuant to the Federal Administrative Procedure Act; whereas others argued that its review should be a *de-novo* court trial one. The third comment is that the House Commerce Committee has apparently selected the administration bill as the basis for the amendment to be reported by it, which contains the FDA review plan; and that it is now revising this bill to a more or less extent. Hence our final task is to explain the administration bill. But I should first record that speaking for the major national association of food manufacturers I testified before that Committee in support of this bill, in a duly revised form.

5

"The amendment made by this administration bill may be now summarized as follows:

"*First.* It broadly applies to any substance added to food in its manufacture, subject to three exceptions. They are pesticide chemical additives otherwise regulated by the FDC Act, additives instead regu-

lated by the Federal Meat Inspection Act, and additives which have been administratively approved under the FDC Act.

"Second. It requires that the manufacturer of any such additive or of a food containing it shall adequately pretest it to determine whether it is actually safe for use under the conditions of its intended use, where that precautionary action is scientifically indicated to protect the public health.

"Third. It requires that the pretesting and other relative data on each such additive shall be submitted to the administrator of this Act for his evaluation, to decide whether it is safe for use.

"Fourth. It provides that if this evaluation shows that the additive is safe for use under defined conditions, the administrator shall issue a regulation accordingly for general guidance.

"Fifth. It provides that a negative administrative evaluation of an additive shall be subject to an optional scientific, administrative and judicial review. The scientific review is made by an *ad hoc* expert advisory committee selected by the National Academy of Sciences; and its report against that evaluation would doubtless be accepted by the administrator. The administrative review is made through a public hearing, which results in an order based on administrative findings of fact justified by the evidence adduced at the hearing. The judicial review applies to a negative administrative order after such an administrative hearing; it is made by the appellate federal courts; and in it the administrative findings of fact must be sustained if they are supported by substantial evidence when considered on the record as a whole.

"Sixth. It authorizes the administrator himself to issue a regulation which prohibits or limits the use of a food additive, where necessary to protect the public health; which is likewise subject to the aforesaid scientific, administrative and judicial review.

"This explanation of the administrative bill establishes that it would amend the FDC Act to correct its existing basic law for safe food additives; and that its new substitute law would be an adequate protective one indeed. And it should be finally noted on this occasion that such law would be an internationally unique one, in its governing requirement of industrial safety pretesting; and in its broad plan to review a negative administrative evaluation of a proposed food additive."

[The End]

ANNEX A

Chemical Additives Permitted in Meats and Meat Food Products by the United States Department of Agriculture (November 8, 1957)

Additive	*Purpose*	*Products*	*Amount*
Acetic acid	Refining	Rendered fats	Sufficient for purpose
Amines, filming	Volatile boiler additive to retard corrosion in pipes	Steam	See chemical name
Anti-foam A (methyl polysilicone)	To retard foaming	Soup	10 ppm
Antioxidants (oxygen interceptors)	To retard rancidity development	Lard and shortening	0.01% singly; 0.02% combinations
Ascorbic acid	Accelerate color fixing in curing	Cured cuts; cured comminuted products	7½ ozs. to 100 gals. pickle; ¾ oz. to 100 lbs. meat
Bacterial starter; lactic acid starter culture	To develop flavor	Dry sausage; pork roll	0.5%
Benzoate, sodium; benzoic acid	To retard flavor reversion	Oleomargarine	0.1%
BHA (butylated hydroxyanisole)	Antioxidant: To retard rancidity development	Lard and shortening	0.01%
	Antioxidant: To retard rancidity development	Unsmoked dry sausage	0.003%
BHT (butlyated hydroxytoluene)	Antioxidant: To retard rancidity development	Lard and shortening	0.01%
Bicarbonate of soda	To neutralize excess acidity; cleaning vegts.	Rendered fats; tomato soup; beans, etc.	Sufficient for purpose
Borax	Preservative	Export	Sufficient for purpose
Bromelin	Same use as papain		
Carbon (purified charcoal)	Refining	Rendered fat	Sufficient for purpose

Carbon dioxide gas	Immobilizing	Hogs	Sufficient for purpose
Caseinate, sodium	Binder and extender	Imitation sausage; non-specific loaves; soups; stews, etc.	Sufficient for purpose
Caustic soda (sodium hydroxide)	Refining; denuding	Fats; tripe	Sufficient for purpose
Cellulose gum (carboxy-methyl cellulose)	Extender, stabilizer	Baked pies, etc.	Sufficient for purpose
Citric acid	Synergist: To increase effectiveness of antioxidants	Lard and shortening	0.01%
	Synergist: To increase effectiveness of antioxidants	Unsmoked dry sausage	0.01%
	To protect flavor	Oleomargarine	Sufficient for purpose
	Flavoring	Chili con carne	Sufficient for purpose
Citric acid and sodium citrate	Prevent coagulation	Beef blood	0.2%
Coloring material, vegetable, and synthetic	To color casings, rendered fat, marking ink, etc.	Sausage casings; oleomargarine; shortening; branding ink	Sufficient for purpose
Corn syrup	Flavor; cure	Cured products; hamburger	2.5%
Corn syrup dried	Flavor; cure	Cured product; hamburger	2.0%
Cyclamate, sodium	Sweetener	Bacon	0.15%
Cyclohexylamine	To retard corrosion	Boiler water	10 ppm from approved feeder
Dextrose	Flavor; cure; seasoning	Sausage, ham, etc.	Sufficient for purpose
Diacetyl	Flavor	Oleomargarine	Sufficient for purpose
Diatomaceous earth	Refining	Rendered fats	Sufficient for purpose
Dry ice (carbon dioxide-solid)	Cooling	Chopping of meat; packaging of product	Sufficient for purpose
Enzymes, proteolytic	See papain, bromelin, ficin		
Ficin	Same use as papain		
Fullers earth	Refining	Rendered fat	Sufficient for purpose

ANNEX A—Continued

Additive	*Purpose*	*Products*	*Amount*
Glycerol (glycerine)	Inhibit drying; manufacture of mono- & diglycerides	Seasonings, curing mixes	Sufficient for purpose
Glycerol lactopalmitate, etc.	A type of mono- & diglycerides	Shortening	Sufficient for purpose
Gums, vegetable (tragacanth, karaya, etc.)	Emulsifying agent; binder	Spice emulsion; egg roll, breading mix	Sufficient for purpose
Hydrogen peroxide	Bleach	Tripe	Sufficient for purpose
Hydrolyzed plant protein	Flavor	Various	Sufficient for purpose
Isoascorbic acid	Accelerate color fixing in curing	Cured cuts; cured comminuted product	7½ ozs. to 100 gals. pickle; ¾ oz. to 100 lbs. meat
Isopropyl citrates	To protect flavor	Oleomargarine	0.02%
Lecithin	To retard rancidity development; emulsifier	Lard and shortening	Sufficient for purpose
	Emulsifier	Oleomargarine	0.5%
Lignin	Loosen scale	Steam boilers	Sufficient for purpose
Lime	Denude	Tripe	Sufficient for purpose
Malt syrup	Flavor; cure	Cured product	2.5%
Mono- and diglycerides	Emulsifiers	Lard, shortening; oleomargarine	Sufficient for purpose; 0.5% in oleomargarine
Monoisopropyl citrate	To increase effectiveness of antioxidants	Lard, shortening; oleomargarine	0.01% in lard & shortening; 0.02% in oleomargarine
Monosodium glutamate	Flavor	Various	Sufficient for purpose
Morpholine	To retard corrosion	Boiler water	10 ppm from approved feeder
Nickel	Catalyst	Hydrogenated fats	Sufficient for purpose
Nitrate of soda or potassium	Source of nitrite	Cured products	See sodium or potassium nitrate
Nitrite of soda or potassium	Fix color	Cured products	See sodium or potassium nitrite

Nitrogen	Exclude oxygen	Sealed products	Sufficient for purpose
Nordihydroguaiaretic acid (NDGA)	Antioxidant: To retard rancidity development	Lard and shortening	0.01%
Octadecylamine	Boiler additive to retard corrosion in steam pipes	Steam	2.5 ppm in condensed steam (analysis required)
Oxygen interceptor	See antioxidants		
Papain	Soften tissue	Frozen cuts	Sufficient for purpose
Phosphates: disodium; sodium hexameta-; tripoly-; sodium pyro-sodium acid pyro-phosphate	Decrease amount of cooked-out juices	Ham, pork, shoulder picnic; canned chopped ham	5.0% in pumping pickle; 0.5% in canned chopped ham
Phosphate, sodium hexameta-	Retard scale formation in pipes	Potable water supply	10 ppm from approved feeder
Phosphate, trisodium	Denuder	Tripe	Sufficient for purpose
Phosphoric acid	Synergist: To increase effectivenes of antioxidants	Lard and shortening	0.01%
Propyl gallate	Antioxidant: To retard rancidity development	Lard and shortening	0.01%
Resin guaiac	Antioxidant: To retard rancidity development	Lard and shortening	0.1%
Silica gel	Anti-caking agent	Curing mixes, etc.	0.5%
Sodium ascorbate; sodium isoascorbate	Accelerate color fixing in curing	Cured cuts; cured comminuted products	7½ ozs. to 100 gals. pickle; ⅞ oz. to 100 lbs. meat; 10% soln. to surface of cured product prior to packaging
Sodium bicarbonate	See bicarbonate of soda		
Sodium carbonate	Refining; denuding	Fats; tripe	Sufficient for purpose
Sodium caseinate	Binder and extender	Imitation sausage; non-specific loaves; soups; stews; etc.	Sufficient for purpose

ANNEX A—Continued

Additive	*Purpose*	*Products*	*Amount*
Sodium hydroxide (caustic soda)	Denuder	Tripe	Sufficient for purpose
Sodium metasilicate	Denuder	Tripe	Sufficient for purpose
Sodium or potassium nitrate	Source of nitrite	Cured products	7 lbs. to 100 gals. pickle; 3½ ozs. to 100 lbs. meat (dry cure); 2¾ ozs. to 100 lbs. chopped meat
Sodium or potassium nitrite	Color fixing	Cured products	200 ppm (0.2%) in product; 2 lbs. to 100 gals. pickle; 1 oz. to 100 lbs. meat (dry cure); ¼ oz. to 100 lbs. chopped meat
Sodium sulfoacetate derivatives of mono- and diglycerides	Emulsifier	Oleomargarine	0.5%
Sorbitol	Retard drying	Seasonings	Sufficient for purpose
Starter distillate	Flavor	Oleomargarine	Sufficient for purpose
Stearyl citrate	To protect flavor	Oleomargarine	0.15%
Sugars, approved (sucrose and dextrose)	Flavoring; curing; seasoning	Sausage, ham, miscellaneous	Sufficient for purpose
Sulphides with strong alkali	Retard corrosion	Boiler water	Sufficient for purpose
Tannic acid	Refining; loosen scale	Rendered fats; boiler water	Sufficient for purpose
Tocopherols	Antioxidant: To retard rancidity development	Lard and shortening	0.03%
Trisodium phosphate	Denuder	Tripe	Sufficient for purpose

ANNEX B[1]

A Partial List of Chemical Food Additives Which the United States Food and Drug Administration Advises Are Generally Recognized as Safe When Used According to Accepted Cooking Procedure or as Used in Good Commercial Practice

(These chemicals would have to be used so that the food complies with all sections of the Food, Drug, and Cosmetic Act; it is understood that each substance should be of food grade.)

Acacia gum
Acetic acid (dilute)
Agar-Agar
Aluminum and potassium sulfate (alum)
Aluminum sodium sulfate
Amino acids which are normal constitutents in foods

Baking power
Baking soda
Bay leaves
Brandy
Butter

Calcium carbonate
Calcium sulfate
Caramel
Carbon dioxide
Carragheen
Carob bean gum
Citric acid
Cloves
Coffee
Corn oil
Cornstarch
Corn sirup
Cottonseed oil
Cream
Cream of tartar

Dextrin
Dicalcium orthophosphate
Dried skim milk

Ethyl vanillin

Gelatin
Glycerine

Karaya gum

Lard

Lecithin
Lemon extract
Lemon juice

Mace
Magnesium carbonate
Margarine
Methyl and propyl para hydroxy benzoates
Molasses
Monocalcium phosphate
Mono- and di-glycerides of the fat-forming fatty acids (except lauric)
Monosodium glutamate
Mustard

Nitrogen gas

Oat gum
Olive Oil

Paprika
Pectin
Pepper
Potassium carbonate
Propylene glycol

Salt
Sodium carboxymethyl cellulose
Sodium dihydrogen phosphate
Sodium tartrate
Sorbic acid
Sugar

Tartaric acid
Tricalcium orthophosphate

Vanilla extract
Vanillin
Vinegar

Wine

[1] The Commissioner of Food and Drugs submitted the lists in Annexes B-D on April 15, 1958, to the House Committee on Interstate and Foreign Commerce for its review in considering a food additive pretesting amendment of the FDC Act.

ANNEX C

A Partial List of Chemicals Which Have Been Accepted For Use in Foods by the United States Food and Drug Administration, or for Use in Meats by the Meat Inspection Division of the United States Department of Agriculture

(Provided their use does not deceive or render the food adulterated or misbranded under sections of the act other than Sec. 402(a)(2).)

Antifoam A: Not more than 10 parts per million

Benzoic Acid: 0.1 percent

Benzoate of soda: 0.1 percent

Butylated hydroxyanisole:[2] In meat food products, not over 0.01 percent of the fat content of the meat: in other food, not over 0.02 percent of the fat content of the food

Butylated hydroxytoluene:[2] Not over 0.01 percent of the fat content of the food

Calcium propionate or sodium propionate or any mixture of the two: In bread, not more than 0.32 part for each 100 parts by weight of flour used

Cyclohexylamine: Up to 10 parts per million of the amine (free or combined) in steam that may be in contact with food

Dilauryl thiodipropionate:[2] Not over 0.01 percent of the fat content of the food

Distearyl thiodiproprionate:[2] Not over 0.01 percent of the fat content of the food

Monoisopropyl citrate: In margarine—in amount not to exceed 0.02 percent by weight of the finished margarine

Morpholine: Up to 10 parts per million of the amine (free or combined) in steam that may be in contact with food

Nordihydroguaiaretic acid:[2] Not more than 0.01 percent of the fat content of the food

Propyl gallate:[2] Not more than 0.01 percent of the fat content of the food

Resin guaiac:[2] Not over 0.1 percent of the fat content of the food

Saccharin: In some special dietary foods

Sodium or calcium cyclamate: In some special dietary foods

Sodium diacetate: In bread: permitted in not more than 0.32 part of each 100 parts by weight of flour used

Sodium silico aluminate, precipitated hydrated: Satisfactory for use in salt, not more than 2 percent; seasoning, not more than 2 percent; sugar, not more than 1 percent; baking powder, not more than 5 percent

Sulfur dioxide (or sodium sulfite): In molasses, dried fruits, and some other foods—200 to 300 parts per million (not permitted in some foods—see separate list)

Thiodipropionic acid:[2] Not over 0.01 percent of the fat content of the food

Tocopherol: Not more than 0.03 percent of the fat content of the food

[2] Where two or more of these antioxidants are present in the same food, the total quantity of antioxidant should be limited.

ANNEX D

A Partial List of Chemicals Which the United States Food and Drug Administration Advises Have Not Been Shown to Be Satisfactory for Uses That Would Leave Residues in Food

(Many of the chemicals appearing on this list are not being used in foods, so far as the Food and Drug Administration knows, but each chemical on the list has been proposed for use in or on food.)

CHEMICAL AND USE

Acetoglycerides: To coat foods and as ingredient of fat spreads
Aceto-olein: Coating on baking pans
Alkyl aryl sulfonates: Cleaning agent
Allyl compounds: Flavoring
Ammonium persulfate: Bleaching agent
Antarox A-400: Wetting agent
Antibiotics (except two antibiotics in uncooked poultry, for which tolerances have been established): Preservative
Benzal acetone: Artificial flavor
Benzo-dihydro-pyrone: Artificial flavor
Beta-naphthoxyacetic acid: Stimulate growth of plants to increase yields
Calcium iodate: Source of iodine in human food (permitted in animal feed)
Carbowax 6000: In a dietary supplement
Cellosolve: Sealing packages—adhesive
Cobalt carbonate: As an additive to salt
Coumarin: Flavoring
Cyclic, glassy phosphates: Sequesterants
DeeO glycose oxidase: Antioxidant
Dehydroacetic acid (except as a pesticide on strawberries, for which a tolerance has been establishd): Preservative
Dibutyl phthalate: Softener in chewing gums
Diethylene glycol monoethyl ether: Solvent in flavors
Diglycol stearate: Emulsifier
Dimethyl dichlorosuccinate: Preservative
Ethyl gallate: Antioxidant
Ethylene oxide (except as fumigant for spices and copra where tolerances have been established): Fumigant
Ethylene glycol: Antifreeze agent in brine spray refrigeration units
Filtrona Q: Component of plastic that would contact food
GR-I-17: Antioxidant
Hexamethylene tetramine: Preservative
Hydroquinone: Antioxidant
8-Hydroxyquinoline: Sequesterant
Isopropyl alcohol: Solvent in flavors
Lauryl alcohol: As fatty alcohol in nonstandardized foods
Methyl phthalyl ethyl glycollate: To impart grease resistance to boxboard containers
Nitrated flour (flour treated with nitric acid): Coloring of food
Octadecylamine: Rust inhibitor in steam lines where steam contacts food
Oxo amyl acetates: Food flavorings
Pentachlorophenol: Fungicide
Peracetic acid: Preservative

ANNEX D—Continued

Phenylacetic acid: Artificial flavors
Polyoxethylene esters of fatty acids: Emulsifier
Polyoxyethylene sorbitan esters of fatty acids: Emulsifier
Polysorbate 60: Additive to food to increase caloric intake
Polyvinyl alcohol: Thickener
Pyrogallol: Preservative
Quaternary ammonium sanitizing agents: Cleaning agent
Salts of polyacrylic acid: Stabilizer
Soap (sodium oleate): Emulsifier
Sodium 2-chloro-6-phenylphenate: Preservative
Sodium 3-hydroxy-2-naphthoate: Solubilizing agent
Sodium iodate: Source of iodine in human food (permitted in animal feed)
Sodium nitrite on fish fillets and poultry products: Preservative
Sodium silicate: Additive, purpose not known
Sorbitan esters of fatty acids: Emulsifier
Sucrose monostearate: Softener
Sulfur dioxide: Not suitable for use on foods which are good sources of vitamin B_1. (It is permitted with limitation in some foods.)
Triethanolamine stearate: Emulsifier

ANNEX E

Coal-Tar Colors Listed by the United States Food and Drug Administration as Harmless and Suitable for Use in Food

FD & C No.	*Chemical Name*
Green No. 1	Monosodium salt of 4-[4-(N-ethyl-p-sulfobenzylamino)-diphenylmethylene]—[1—(N-ethyl-N-p-sulfoniumbenzyl)-$\Delta^{2,5}$-cyclohexadienimine].
Green No. 2	Disodium salt of 4-{[4-(N-ethyl-p-sulfobenzylamino)-phenyl]—(4-sufonium-phenyl)-methylene}-[1-(N-ethyl-N-p-sulfobenzyl)-$\Delta^{2,5}$-cyclohexadienimine].
Green No. 3	Disodium salt of 4-{[4-(N-ethyl-p-sulfobenzylamino)-phenyl]—(4-hydoxy-2-sulfonium-phenyl)-methylene}-[1—(N-ethyl-N-p-sulfonbenzyl)-$\Delta^{2,5}$-cyclohexadienimine].
Yellow No. 1	Disodium salt of 2,4-dinitro-1-naphthol-7-sulfonic acid.
Yellow No. 2	Dipotassium salt of 2,4-dinitro-1-naphthol-7-sulfonic acid.
Yellow No. 3	1-Phenylazo-2-naphthylamine.
Yellow No. 4	1-o-Tolylazo-2-naphthylamine.
Yellow No. 5	Trisodium salt of 3-carboxy-5-hydroxy-1-p-sulfophenyl-4-p-sulfophenylazo-pyrazole.
Yellow No. 6	Disodium salt of 1-p-sulfophenylazo-2-naphthol-6-sulfonic acid.
Red No. 1	Disodium salt of 1-pseudocumylazo-2-naphthol-3,6-disulfonic acid.
Red No. 2	Trisodium salt of 1-(4-sulfo-1-naphthylazo)-2-naphthol-3,6-disulfonic acid.
Red No. 3	Disodium salt of 9-o-carboxyphenyl-6-hydroxy-2,4,5,7-tetraiodo-3-isoxanthone.
Red No. 4	Disodium salt of 2-(5-sulfo-2,4-xylylazo)-1-naphthol-4-sulfonic acid.

Blue No. 1	Disodium salt of 4-{[4-(N-ethyl-p-sulfobenzylamino)-phenyl]—(2-sulfoniumphenyl)-methylene}-[1-(N-ethyl-N-p-sulfobenzyl—$\Delta^{2,5}$-cyclohexadienimine].
Blue No. 2	Disodium salt of 5, 5′-indigotindisulfonic acid.
Violet No. 1	Monosodium salt of 4-{[4-(N-ethyl-p-sulfobenzylamino)—phenyl]—[4-(N-ethyl-p-sulfoniumbenzylamino) — phenyl]-methylene}—(N,N-dimethyl—$\Delta^{2,5}$-cyclohexadienimine).

ANNEX F

Exemptions and Tolerances Established by the United States Food and Drug Administration With Respect to Agricultural Pesticide Chemicals

PESTICIDE CHEMICALS WHICH ARE NOT UNDER THE MILLER AMENDMENT

The following pesticide chemicals are not under the Miller Amendment. They have been declared safe and require no formal tolerances or exemptions for pesticidal use: sulfur, lime, lime-sulfur, potassium polysulfide, sodium carbonate, sodium polysulfide.

PESTICIDE CHEMICALS WHICH ARE EXEMPT FROM THE REQUIREMENT OF A TOLERANCE

A. When applied to growing crops, in accordance with good agricultural practice, the following pesticide chemicals are exempt from the requirement of a tolerance:

(1) The following copper compounds:

Bordeaux mixture	copper silicate
copper acetate	copper sulfate basic
basic copper carbonate (malachite)	copper-zinc chromate
copper-line mixtures	cuprous oxide
copper oxychloride	tetra copper calcium oxychloride

(2) Allethrin (allyl homolog of cinerin 1) on beans, broccoli, brussels sprouts, cabbage, cauliflower, collards, horseradish, kale, kohlrabi, lettuce, mushrooms, mustard greens, radish, rutabagas, turnips.

(3) N-Ocytylbicyclo-(2,2,1) —(5-heptene-2,3-dicarboximide)

(4) Petroleum oils

(5) Piperonyl butoxide

(6) Piperonyl cyclonene

(7) N-Propyl isome

(8) Pyrethrum and pyrethrins

(9) Rotenone or derris or cube roots

(10) Ryania

(11) Sabadilla

These pesticides are not exempted from the requirement of a tolerance when applied to a crop at the time of or after harvest. Tolerances have been established for post-harvest uses of some of these pesticides. See under specific crops.

ANNEX F—Continued

B. When applied to raw agricultural commodities after harvest in accordance with good agricultural practice, the following pesticide chemicals are exempt from the requirements of a tolerance:

(1) Carbon disulfide (exempt when used as post-harvest fumigant on barley, corn, oats, popcorn, rice, rye, sorghum (milo), wheat).

(2) Ammonia (exempt for post-harvest use on grapefruit, lemons, oranges.)

(3) Carbon tetrachloride (exempt when used as post-harvest fumigant on barley, corn, oats, popcorn, rice, rye, sorghum (milo), wheat).

(4) Ethylene dichloride (exempt when used as post-harvest fumigant on barley, corn, oats, popcorn, rice, rye, sorghum (milo), wheat).

(5) Ethylene dibromide (organic bromide residues exempt when used as a fumigant on barley, corn, oats, popcorn, rice, rye, sorghum (milo), wheat).

A tolerance of 50 p.p.m. of inorganic bromide residues (calculated as Br.) from ethylene dibromide when used as a grain fumigant has been set on the same crops.

(6) Chloropicrin (exempt when used as a fumigant for the following grains: barley, buckwheat, corn, oats, rice, rye, grain sorghum, wheat).

ZERO TOLERANCES

The following poisonous or deleterious substances should not be used under conditions that will leave any toxic residues from them on fruits or vegetables as prepared for market.

Calcium cyanide (tolerances established for certain uses. See under specific crops).

Dinitro-O-sec. butylphenol.

Dinitro-O-cresol.

Hexaethyl tetraphosphate.

Mercury-containing compounds.

Hydrocyanic acid (tolerances established for post-harvest use. See under specific crops).

Selenium and selenium compounds.

Tetraethyl pyrophosphate.

The Zero Tolerances listed above are from the 1950 hearings. Other Zero Tolerances established under the Miller Amendment are listed under specific crops.

NOTE: Many uses of pesticides leave no residues when the pesticides are used as directed. Where no residues result from a certain use of a pesticide, it is not necessary to obtain a formal tolerance. However, this has been done in some instances and a number of Zero Tolerances have been established because no residues result from use of the pesticides according to directions. For detailed information on specific pesticides consult the manufacturer.

Unless otherwise stated tolerances apply to residues from pre-harvest or pre-slaughter applications of pesticide chemicals

FRUITS

(1) Apples, pears, and quinces.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Benzene hexachloride	5 p.p.m.
Captan	20 p.p.m.
Chlordane	0.3 p.p.m.
S-(*p*-chlorophenylthio)-methyl *O,O*-diethyl phosphorodithioate.	0.8 p.p.m.
DDT	7 p.p.m.
2,4-Dichlorophenoxy acetic acid	5 p.p.m.
Dicyclohexylamine salt of dinitro-O-cyclohexylphenol	1 p.p.m.
Dieldrin	0.25 p.p.m.
O,O-dimethyl *S*-(4-*oxo*-1,2,3-benzotriazinyl-3-methyl) phosphorodithioate	2 p.p.m.
EPN	3 p.p.m.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Glyodin	5 p.p.m.
Lead arsenate	7 p.p.m. of combined lead.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Methyl bromide (post-harvest fumigation)	5 p.p.m. of inorganic bromide calculated as Br.
Methoxychlor	14 p.p.m.
Napthalene acetic acid	1 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Phenothiazine	7 p.p.m.
TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

Apples and pears.

Pesticide	*Tolerance*
Allethrin (post-harvest use)	4 p.p.m.
2-(*p-tert*-butylphenoxy)-isopropyl-2-chloroethyl sulfite	1 p.p.m.
p-chlorophenyl phenyl sulfone	8 p.p.m.
Dalapon	3 p.p.m. as 2,2-dichloropropionic acid.
Demeton	0.75 p.p.m.
O,O-diethyl *O*-(2-isopropyl-4-methyl-6-pyrimidinyl) phosphorothioate	0.75 p.p.m.
Ethyl 4,4'-dichlorobenzilate	5 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	0.5 p.p.m.
Ovex	3 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.

ANNEX F—Continued

Pyrethrins (post-harvest use)	1 p.p.m.
Sodium-o-phenylphenate (post-harvest use)	5 p.p.m.

Apples.

Pesticide	*Tolerance*
Dichlone	3 p.p.m.
Heptachlor	0.1 p.p.m.
Maneb	7 p.p.m.
Manganous dimethyldithiocarbamate	7 p.p.m. as zinc ethylene-bisdithiocarbamate.
Mercaptobenzothiazole	0.1 p.p.m. as 2,2'-dithiobisbenzothiazole.
Thiram	7 p.p.m.

Crabapples.

Pesticide	*Tolerance*
Allethrin (post-harvest use)	4 p.p.m.
S-(*p*-chlorophenylthio)-methyl *O,O*-diethyl phosphorodithioate	0.8 p.p.m.
O,O-dimethyl *S*-(4-*oxo*-1,2,3-benzotriazinyl-3-methyl) phosphorodithioate	2 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.

Pears.

Pesticide	*Tolerance*
Basic copper carbonate (post-harvest application)	3 p.p.m. of combined copper.

(2) Apricots.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Benzene hexachloride	5 p.p.m.
Captan	20 p.p.m.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Dicyclohexylamine salt of dinitro-O-cyclohexylphenol	1 p.p.m.
Dieldrin	0.1 p.p.m.
O,O-dimethyl *S*-(4-*oxo*-1,2,3-benzotriazinyl-3-methyl) phosphorodithioate	2 p.p.m.
EPN	3 p.p.m.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lead arsenate	7 p.p.m. of combined lead.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Maneb	7 p.p.m.

Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

(3) Avocados.

Pesticide	*Tolerance*
Benzene hexachloride	5 p.p.m.
DDT	7 p.p.m.
Lead arsenate	7 p.p.m. of combined lead.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Monuron	1 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.

Blackberries. For tolerances established for pesticide residues on blackberries, see "Raspberries, blackberries, etc."

(4) Blueberries (huckleberries).

Pesticide	*Tolerance*
Allethrin (post-harvest use)	4 p.p.m.
2-(*p-tert*-butylphenoxy)-isopropyl-2-chloroethyl sulfite	1 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lead arsenate	7 p.p.m. of combined lead.
Malathion	8 p.p.m.
Methoxychlor	14 p.p.m.
Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.
TDE	7 p.p.m.
Ziram	7 p.p.m.

(5) Cherries.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Allethrin (post-harvest use)	4 p.p.m.
Benzene hexachloride	5 p.p.m.
Captan	20 p.p.m.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
1,1-Dichloro-2,2-bis (p-ethylphenyl) ethane	15 p.p.m.

ANNEX F—Continued

Dicyclohexylamine salt of dinitro-O-cyclohexylphenol	1 p.p.m.
Dieldrin	0.25 p.p.m.
O,O-diethyl *O*-(2-isopropyl-4-methyl-6-pyrimidinyl) phosphorothioate	0.75 p.p.m.
EPN	3 p.p.m.
Ferbam	7 p.p.m.
Heptachlor	0.1 p.p.m.
Glyodin	5 p.p.m.
Lead arsenate	7 p.p.m. of combined lead.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.
TDE	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

(6) Citrus fruits.

Grapefruit, lemons, limes, oranges, tangerines.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Benzene hexachloride	5 p.p.m.
Captan	20 p.p.m.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
2, 4, Dichlorophenoxy acetic acid	5 p.p.m.
Dicyclohexylamine salt of dinitro-O-cyclohexylphenol	1 p.p.m.
Dieldrin	0.25 p.p.m.
Dinitro-O-cyclohexylphenol	1 p.p.m.
Ethylene dibromide (USDA Quarantine Program)	10 p.p.m. of inorganic bromide calculated as Br.
EPN	3 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lead arsenate	1 p.p.m. of combined lead.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Monuron	1 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Sodium-o-phenylphenate (post-harvest use)	10 p.p.m.
Tartar emetic	3.5 p.p.m. of combined antimony trioxide.

TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.

Grapefruit, oranges, lemons, tangerines.

Pesticide	*Tolerance*
Ovex	5 p.p.m.

Grapefruit, lemons, oranges.

Pesticide	*Tolerance*
2-(*p-tert*-butylphenoxy)-isopropyl-2-chloroethyl sulfite	1 p.p.m.
Demeton	0.75 p.p.m.
Diphenyl (post-harvest use)	110 p.p.m.

Lemons and oranges.

Pesticide	*Tolerance*
Ethyl 4,4'-dichlorobenzilate	5 p.p.m.

Oranges.

Pesticide	*Tolerance*
Allethrin (post-harvest use)	4 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.

Citrus citron.

Pesticide	*Tolerance*
Monuron	1 p.p.m.
Sodium-o-phenylphenate (post-harvest use)	10 p.p.m.

Kumquats.

Pesticide	*Tolerance*
Malathion	8 p.p.m.
Monuron	1 p.p.m.
Sodium-o-phenylphenate (post-harvest use)	10 p.p.m.

Tangelos.

Pesticide	*Tolerance*
Malathion	8 p.p.m.
Monuron	1 p.p.m.
Sodium-o-phenylphenate (post-harvest use)	10 p.p.m.

(7) Cranberries.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
DDT	7 p.p.m.
Dieldrin	0.1 p.p.m.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lead arsenate	7 p.p.m. of combined lead.

ANNEX F—Continued

Malathion	8 p.p.m.
Maneb	7 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

(8) Currants.

Pesticide	*Tolerance*
Allethrin (post-harvest use)	4 p.p.m.
DDT	7 p.p.m.
Ferbam	7 p.p.m.
Lead arsenate	7 p.p.m. of combined lead.
Malathion	8 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.
Zineb	7 p.p.m.

(9) Dates.

Pesticide	*Tolerance*
Ferbam	7 p.p.m.
Malathion	8 p.p.m.
Parathion	1 p.p.m.

(10) Figs.

Pesticide	*Tolerance*
Allethrin (post-harvest use)	4 p.p.m.
Maneb	7 p.p.m.
Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.

(11) Gooseberries.

Pesticide	*Tolerance*
Allethrin (post-harvest use)	4 p.p.m.
DDT	7 p.p.m.
Ferbam	7 p.p.m.
Lead arsenate	7 p.p.m. of combined lead.
Malathion	8 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.

Pyrethrins (post-harvest use)	1 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

Grapefruit. For tolerance established for pesticide residues on grapefruit, see "Citrus fruits."

(12) Grapes.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Allethrin (post-harvest use)	4 p.p.m.
Benzene hexachloride	5 p.p.m.
2-(*p-tert*-butylphenoxy)-isopropyl-2-chloroethyl sulfite	1 p.p.m.
Captan	20 p.p.m.
Chlordane	0.3 p.p.m.
Dalapon	3 p.p.m. as 2,2-dichloropropionic acid.
DDT	7 p.p.m.
Demeton	1.25 p.p.m.
Dicyclohexylamine salt of dinitro-O-cyclohexylphenol	1 p.p.m.
Dieldrin	0.1 p.p.m.
Diuron	1 p.p.m.
EPN	3 p.p.m.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Heptachlor	0.1 p.p.m.
Lead arsenate	7 p.p.m. of combined lead.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Maneb	7 p.p.m.
Methoxychlor	14 p.p.m.
Monuron	1 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.
Sodium arsenate	3.5 p.p.m. of combined As_2O_3.
Tartar emetic	3.5 p.p.m. of combined antimony trioxide.
TDE	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

(13) Guavas.

Pesticide	*Tolerance*
Allethrin (post-harvest use)	4 p.p.m.
Benzene hexachloride	5 p.p.m.

ANNEX F—Continued

DDT	7 p.p.m.
Ethylene dibromide (USDA Quarantine Program)	10 p.p.m. of inorganic bromide calculated as Br.
Ferbam	7 p.p.m.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.
Zineb	7 p.p.m.

Lemons. For tolerances established for pesticide residues on lemons, see "Citrus fruits."

Loganberries. For tolerances established for pesticide residues on loganberries, see "Raspberries, etc."

(14) Mangoes.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Allethrin (post-harvest use)	4 p.p.m.
Benzene hexachloride	5 p.p.m.
Captan	20 p.p.m.
DDT	7 p.p.m.
Dieldrin	0.1 p.p.m.
Ethylene dibromide (USDA Quarantine Program)	10 p.p.m. of inorganic bromide calculated as Br.
Ferbam	7 p.p.m.
Lead arsenate	7 p.p.m. of combined lead.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.

Nectarines. For tolerances established for pesticide residue on nectarines, see "Peaches and nectarines."

Oranges. For tolerances established for pesticide residues on oranges, see "Citrus fruits."

(15) Papayas.

Pesticide	*Tolerance*
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Ethylene dibromide (USDA Quarantine Program)	10 p.p.m. of inorganic bromide calculated as Br.
Ferbam	7 p.p.m.

(16) Passion fruit.

Pesticide	*Tolerance*
Malathion	8 p.p.m.

(17) Peaches and nectarines.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Benzene hexachloride	5 p.p.m.
Captan	20 p.p.m.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Dicyclohexylamine salt of dinitro-O-cyclohexylphenol	1 p.p.m.
Dieldrin	0.1 p.p.m.
O,O-dimethyl *S*-(4-*oxo*-1,2,3-benzotriazinyl-3-methyl) phosphorodithioate	2 p.p.m.
EPN	3 p.p.m.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lead arsenate	7 p.p.m. of combined lead.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

Peaches.

Pesticide	*Tolerance*
Allethrin (post-harvest use)	4 p.p.m.
2-(*p-tert*-butylphenoxy)-isopropyl-2-chloroethyl sulfite	1 p.p.m.
p-chlorophenyl phenyl sulfone	8 p.p.m.
Dichlone	3 p.p.m.
Glyodin	5 p.p.m.
Heptachlor	0.1 p.p.m.
Malathion	8 p.p.m.
Maneb	7 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	1 p.p.m.
Ovex	3 p.p.m.
Piperonyl butoxide (post-harvet use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.
Sodium-o-phenylphenate (post-harvest use)	20 p.p.m.

Pears. For tolerances established for pesticide residues on pears, see "Apples, pears, and quinces."

ANNEX F—Continued

(18) Pineapples.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Allethrin (post-harvest use)	4 p.p.m.
Benzene hexachloride	5 p.p.m.
Captan	20 p.p.m.
Chlodane	0.3 p.p.m.
Dalapon	3 p.p.m. as 2,2-dichloropropionic acid.
DDT	7 p.p.m.
Dieldrin	0.25 p.p.m.
Diuron	1 p.p.m.
Ethylene dibromide (USDA Quarantine Program)	10 p.p.m. of inorganic bromide calculated as Br.
EPN	3 p.p.m.
Heptachlor	0.1 p.p.m.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Methoxychlor	14 p.p.m.
Monuron	1 p.p.m.
Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.
Sodium-o-phenylphenate (post harvest use)	10 p.p.m.

(19) Plums (fresh prunes).

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Allethrin (post-harvest use)	4 p.p.m.
Benzene hexachloride	5 p.p.m.
2-(*p-tert*-butylphenoxy)-isopropyl-2-chloroethyl sulfite	1 p.p.m.
Captan	20 p.p.m.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Dicyclohexylamine salt of dinitro-O-cyclophexylpenol	1 p.p.m.
Dieldrin	0.1 p.p.m.
Ethylene dibromide (USDA Quarantine Program)	20 p.p.m. of inorganic bromide calculated as Br.
EPN	3 p.p.m.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lead arsenate	7 p.p.m. of combined lead.
Lindane	10 p.p.m.
Malathion	8 p.p.m.

1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	1 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.
Ovex	3 p.p.m.
TDE	7 p.p.m.
Zineb	7 p.p.m.

Quinces. For tolerances established for pesticide residues on quinces see "Apples, pears, and quinces."

(20) Raspberries, blackberries, loganberries, and related berries.

Pesticide	*Tolerance*
Allethrin (post-harvest use)	4 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Dicyclohexylamine salt of dinitro-O-cyclohexylphenol	1 p.p.m.
EPN	3 p.p.m.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Glyodin	5 p.p.m.
Lead arsenate	7 p.p.m. of combined lead.
Malathion	8 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.
TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

Boysenberries and dewberries.

Pesticide	*Tolerance*
Allethrin (post-harvest use)	4 p.p.m.
Malathion	8 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.

Raspberries.

Pesticide	*Tolerance*
2-(*p-tert*-butylphenoxy)-isopropyl-2-chloroethyl sulfite	1 p.p.m.

ANNEX F—Continued

(21) Rhubarb.

Pesticide	*Tolerance*
DDT	7 p.p.m.

(22) Strawberries.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Benzene hexachloride	5 p.p.m.
2-(*p-tert*-butylphenoxy)-isopropyl-2-chloroethyl sulfite	1 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Captan	20 p.p.m.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Demeton	0.75 p.p.m.
Dicyclohexylamine salt of dinitro-O-cyclohexylphenol	1 p.p.m.
Dieldrin	0.1 p.pm
EPN	3 p.p.m.
Ethylene dibromide (soil treatment)	5 p.p.m. of inorganic bromide calculated as Br.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lead arsenate	7 p.p.m. of combined lead.
Lindane	10 p.p.m.
Malathion	8 p.pm.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	1 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Sesone	2 p.p.m.
TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

Tangerines. For tolerances established for pesticide residues on tangerines, see "Citrus fruits."

VEGETABLES

(23) Artichokes.

Pesticide	*Tolerance*
DDT	7 p.p.m.*
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.

(24) Asparagus.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Benzene hexachloride	5 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Dalapon	30 p.p.m. as 2,2-dichloropropionic acid.
DDT	7 p.p.m.
Dieldrin	0.1 p.p.m.
Ethylene dibromide (soil treatment)	10 p.p.m. of inorganic bromide calculated as Br.
Ferbam	7 p.p.m.
Lead arsenate	7 p.p.m. of combined lead.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Methoxychlor	14 p.p.m.
Monuron	7 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Sesone	2 p.p.m.

(25) Beans, green beans, snap beans, lima beans, and black-eyed peas.

Pesticide	*Tolerance*
Benzene hexachloride	5 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Dicyclohexylamine salt of dinitro-O-cyclohexylphenol	1 p.p.m.
EPN	3 p.p.m.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lindane	10 p.p.m.
Magnesium arsenate	3.5 p.p.m. of combined As_2O_3.
Methoxychlor	14 p.p.m.
Methyl bromide (post-harvest fumigation)	50 p.p.m. of inorganic bromice calculated as Br.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

ANNEX F—Continued

Beans.

Pesticide	*Tolerance*
Aldrin	Zero.
Demeton	0.3 p.p.m.
Dieldrin	Zero.
Malathion	8 p.p.m.
Maneb	7 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	0.25 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.

Beans (dried).

Pesticide	*Tolerance*
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.

Green beans.

Pesticide	*Tolerance*
2-(*p-tert*-butylphenoxy)-isopropyl-2-chloroethyl sulfite	1 p.p.m.
Ethylene dibromide (USDA Quarantine Program)	10 p.p.m. of inorganic bromide calculated as Br.

Lima beans.

Pesticide	*Tolerance*
Ethylene dibromide (soil treatment)	5 p.p.m. of inorganic bromide calculated as Br.

Black-eyed peas.

Pesticide	*Tolerance*
Aldrin	Zero.
Dieldrin	Zero.
Heptachlor	0.1 p.p.m.

(26) Beets.

Beets (garden) (with or without tops) or beet greens alone.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Dieldrin	0.25 p.p.m.
EPN	3 p.p.m.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Malathion	8 p.p.m.
Methoxychlor	14 p.p.m.

Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Ziram	7 p.p.m.

Beets, (garden) roots only.

Pesticide	*Tolerance*
Heptachlor	0.1 p.p.m.
Methyl bromide (post-harvest fumigation)	30 p.p.m. of inorganic bromide calculated as Br.
Zineb	7 p.p.m.

Beets, (garden) tops only.

Pesticide	*Tolerance*
Zineb	25 p.p.m.

Sugar beets and sugar beet tops.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Dalapon	5 p.p.m. as 2,2-dichloropropionic acid.
Endrin	Zero.

Sugar beets (but not tops).

Pesticide	*Tolerance*
EPN	3 p.p.m.
Heptachlor	0.1 p.p.m.

(27) Broccoli.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Benzene hexachloride	5 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Demeton	0.75 p.p.m.
1,1-Dichloro-2,2-bis(p-ethylphenyl)ethane	15 p.p.m.
Dieldrin	0.25 p.p.m.
O,O-diethyl *O*-(2-isopropyl-4-methyl-6-pyrimidinyl) phosphorothioate	0.75 p.p.m.
Ethylene dibromide (soil treatment)	75 p.p.m. of inorganic bromide calculated as Br.
Ferbam	7 p.p.m.
Flourine compounds	7 p.p.m. of combined fluorine.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	1 p.p.m.

ANNEX F—Continued

Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

Brussels sprouts. For tolerances established for pesticide residues on brussels sprouts, see "Cabbage, brussels sprouts, etc."

(28) Cabbage, brussels sprouts, kohlrabi, cauliflower.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Benzene hexachloride	5 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Chlordane	0.3 p.p.m.
Copper arsenate	3.5 p.p.m. of combined As_2O_3.
DDT	7 p.p.m.
1,1-Dichloro-2,2-bis(p-ethylphenyl)ethane	15 p.p.m.
Dieldrin	0.25 p.p.m.
Ferbam	7 p.p.m.
Flourine compounds	7 p.p.m. of combined fluorine.
Heptachlor	0.1 p.p.m.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

Cabbage, brussels sprouts, cauliflower.

Pesticide	*Tolerance*
Demeton	0.75 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	1 p.p.m.

Cabbage.

Pesticide	*Tolerance*
O,O-diethyl *O*-(2-isopropyl-4-methyl-6-pyrimidinyl) phosphorothioate	0.75 p.p.m.
Endrin	Zero.

Chinese cabbage.

Pesticide	*Tolerance*
Zineb	25 p.p.m.

Cauliflower.

Pesticide	*Tolerance*
O,O-diethyl *O*-(2-isopropyl-4-methyl-6-pyrimidinyl) phosphorothioate	0.75 p.p.m.
Ethylene dibromide (soil treatment)	10 p.p.m. of inorganic bromide calculated as Br.

(29) Carrots (with or without tops) or carrot tops.

Pesticide	*Tolerance*
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Chlordane	0.3 p.p.m.
Copper arsenate	3.5 p.p.m. of combined As_2O_3.
DDT	7 p.p.m.
Ethylene dibromide (soil treatment)	75 p.p.m. of inorganic bromide calculated as Br.
Ferbam	7 p.p.m.
Flourine compounds	7 p.p.m. of combined fluorine.
Maneb	7 p.p.m.
Methoxychlor	14 p.p.m.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

Carrots.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Dieldrin	0.1 p.p.m.
Heptachlor	0.1 p.p.m.
Malathion	8 p.p.m.

Cauliflower. For tolerances established for pesticide residues on cauliflower, see "Cabbage, brussels sprouts, etc."

(30) Celery.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Benzene hexachloride	5 p.p.m.
2-(*p-tert*-butylphenoxyl)-isopropyl-2-chloroethyl sulfite	1 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.

ANNEX F—Continued

Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Dichlone	3 p.p.m.
Dicyclothexylamine salt of Dinitro-O-cyclohexylphenol	1 p.p.m.
Dieldrin	0.25 p.p.m.
Ferbam	7 p.p.m.
Lead arsenate	7 p.p.m. of combined lead.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Maneb	7 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

Collards. For tolerances established for pesticide residues on collards, see "Kale and collards."

(31) Corn (fresh vegetable).

Pesticide	*Tolerance*
Benzene hexachloride	5 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
EPN	3 p.p.m.
Ethylene dibromide (soil treatment)	50 p.p.m. of inorganic bromide calculated as Br.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Heptachlor	0.1 p.p.m.
Lindane	10 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	0.25 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.

Sweet corn (kernels but not forage thereof).

Pesticide	*Tolerance*
2-(*p-tert*-butylphenoxyl)-isopropyl-2-chloroethyl sulfite	1 p.p.m.

Corn (kernels plus cob with husk removed).

Pesticide	*Tolerance*
Malathion	2 p.p.m.

(32) Cucumbers.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Benzene hexachloride	5 p.p.m.
2-(*p-tert*-butylphenoxyl)-isopropyl-2-chloroethyl sulfite	1 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Captan	20 p.p.m.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Dieldrin	0.25 p.p.m.
Endrin	Zero.
Ethylene dibromide (soil treatment)	30 p.p.m. of inorganic bromide calculated as Br.
Ethylene dibromide (USDA Quarantine Program)	10 p.p.m. of inorganic bromide calculated as Br.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Maneb	7 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	0.25 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

(33) Eggplants.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Benzene hexachloride	5 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Captan	20 p.p.m.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Dieldrin	0.1 p.p.m.
Endrin	Zero.
Ethylene dibromide (soil treatment)	50 p.p.m. of inorganic bromide calculated as Br.

ANNEX F—Continued

Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lead arsenate	7 p.p.m. of combined lead.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Maneb	7 p.p.m.
Methoxychlor	14 p.p.m.
Methyl bromide (post-harvest fumigation)	20 p.p.m. of inorganic bromide calculated as Br.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

(34) Endive and escarole.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
DDT	7 p.p.m.
Dieldrin	0.25 p.p.m.
Malathion	8 p.p.m.
Parathion	1 p.p.m.
Zineb	25 p.p.m.

(35) Kale and collards.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Benzene hexachloride	5 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Dieldrin	0.25 p.p.m.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	1 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Zineb	25 p.p.m.
Ziram	7 p.p.m.

Kohlrabi. For tolerances established for pesticide residues on kohlrabi, see "Cabbage, brussels sprouts, kohlrabi."

(36) Lettuce.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Benzene hexachloride	5 p.p.m.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Demeton	0.75 p.p.m.
1,1-Dichloro-2,2-bis(p-ethylphenyl)ethane	15 p.p.m.
Dieldrin	0.25 p.p.m.
EPN	3 p.p.m.
Ethylene dibromide (soil treatment)	30 p.p.m. of inorganic bromide calculated as Br.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	0.5 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	25 p.p.m.
Ziram	7 p.p.m.

Romaine.

Pesticide	*Tolerance*
Zineb	25 p.p.m.

Lima Beans. For tolerances established for pesticide residues on lima beans, see "Beans, green beans, etc."

(37) Melons, including cantaloupes, muskmelons, watermelons, and other melons.

Pesticide	*Tolerance*
Benzene hexachloride	5 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Ethylene dibromide (soil treatment)	75 p.p.m. of inorganic bromide calculated as Br.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Maneb	7 p.p.m.
Methoxychlor	14 p.p.m.

ANNEX F—Continued

Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Sodium dimethyldithiocarbamate	25 p.p.m. as zinc ethylene-bisdithiocarbamate
TDE	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

Cantaloupes.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
2-(*p-tert*-butylphenoxy)-isopropyl-2-chloroethyl sulfite	1 p.p.m.
Captan	20 p.p.m.
Dieldrin	Zero.
Ethyl, 4,4'-dichlorobenzilate	5 p.p.m.
Ethylene dibromide (USDA Quaratine Program)	10 p.p.m. of inorganic bromide calculated as Br.
Tetraiodoethylene (post-harvest application)	15 p.p.m.

Muskmelons.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Allethrin (post-harvest use)	4 p.p.m.
2-(*p-tert*-butylphenoxy)-isopropyl-2-chloroethyl sulfite	1 p.p.m.
Demeton	0.75 p.p.m.
Dieldrin	Zero.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.

Watermelons.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
2-(*p-tert*-butylphenoxy)-isopropyl-2-chloroethyl sulfite	1 p.p.m.
Captan	20 p.p.m.
Dieldrin	Zero.

Bitter melon (Mormodica charantia).

Pesticide	*Tolerance*
Ethylene dibromide (USDA Quarantine Program)	10 p.p.m. of inorganic bromide calculated as Br.

(38) Mushrooms

Pesticide	*Tolerance*
DDT	7 p.p.m.
Lindane	10 p.p.m.
Malathion	8 p.p.m.

Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Zineb	7 p.p.m.

(39) Mustard greens.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Benzene hexachloride	5 p.p.m.
DDT	7 p.p.m.
Dieldrin	0.25 p.p.m.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	1 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Zineb	25 p.p.m.

(40) Okra.

Pesticide	*Tolerance*
Benzene hexachloride	5 p.p.m.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lindane	10 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Toxaphene	7 p.p.m.

(41) Onions (including green onions).

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Benzene hexachloride	5 p.p.m.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Dieldrin	0.1 p.p.m.
Ferbam	7 p.p.m.
Heptachlor	0.1 p.p.m.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Maneb	7 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	0.25 p.p.m.
Methyl bromide (post-harvest fumigation)	20 p.p.m. of inorganic bromide calculated as Br.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.

ANNEX F—Continued

Tartar emetic	3.5 p.p.m. of combined antimony trioxide.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

Onions (dry bulbs only).

Pesticide	*Tolerance*
Monuron	1 p.p.m.

Garlic.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Malathion	8 p.p.m.

Leeks.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Malathion	8 p.p.m.

Shallots.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Malathion	8 p.p.m.

(42) Parsley.

Pesticide	*Tolerance*
Malathion	8 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Zineb	7 p.p.m.

(43) Parsnips (with or without tops) or parsnip greens alone.

Pesticide	*Tolerance*
DDT	7 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Toxaphene	7 p.p.m.

Parsnips (roots only).

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Dieldrin	0.1 p.p.m.
Ethylene dibromide (soil treatment)	75 p.p.m. of inorganic bromide calculated as Br.
Malathion	8 p.p.m.

(44) Peanuts.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Heptachlor	0.1 p.p.m.
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.
Malathion (post-harvest application)	8 p.p.m.
Methoxychlor	14 p.p.m.
Methyl bromide (post-harvest fumigation)	200 p.p.m. of inorganic bromide calculated as Br.
Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m. (determined on the nuts with shell removed).
Pyrethrins (post-harvest use)	1 p.p.m. (determined on the nuts with shell removed).
Sesone	6 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

(45) Peas.

Pesticide	*Tolerance*
Aldrin	Zero.
Benzene hexachloride	5 p.p.m.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Dieldrin	Zero.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Heptachlor	0.1 p.p.m.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	0.25 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.
TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

ANNEX F—Continued

Peas (dried).

Pesticide	*Tolerance*
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.

Cowpeas.

Pesticide	*Tolerance*
Aldrin	Zero.
Dieldrin	Zero.
Heptachlor	0.1 p.p.m.
Methoxychlor	100 p.p.m.

(46) Peppers (pimientos).

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Benzene hexachloride	5 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Captan	20 p.p.m.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Dieldrin	0.1 p.p.m.
Endrin	Zero.
Ethylene dibromide (soil treatment)	30 p.p.m. of inorganic bromide calculated at Br.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lead arsenate	7 p.p.m. of combined lead.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Maneb	7 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

Peppers (bell).

Pesticide	*Tolerance*
Ethylene dibromide (USDA Quarantine Program)	10 p.p.m. of inorganic bromide calculated as Br.

(47) Potatoes. Tolerances are not needed for those pesticides applied only to the foilage of potatoes and that are not translocated to the tubers.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Chlordane	0.3 p.p.m.
Dalapon	10 p.p.m. as 2,2-dichloropropionic acid.
Demeton	0.75 p.p.m.
2,4-dichloro-6-(*o*-chloroanilino) triazine	1 p.p.m.
Dieldrin	0.1 p.p.m.
Diuron	1 p.p.m.
Endrin	Zero.
Heptachlor	0.1 p.p.m.
Malathion	8 p.p.m.
Maneb	0.1 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	0.25 p.p.m.
Methyl bromide (post-harvest fumigation)	75 p.p.m. of inorganic bromide calculated as Br.
Sesone	6 p.p.m.

(48) Pumpkins.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Benzene hexachloride	5 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Captan	20 p.p.m.
DDT	7 p.p.m.
Dieldrin	Zero.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined flourine.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

(49) Radishes (with or without tops) or radish tops.

Pesticide	*Tolerance*
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Dieldrin	0.1 p.p.m.
Ferbam	7 p.p.m.

ANNEX F—Continued

Fluorine compounds	7 p.p.m. of combined fluorine.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

Radishes.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Heptachlor	0.1 p.p.m.
Malathion	8 p.p.m.

Horseradish.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Dieldrin	0.1 p.p.m.
Malathion	8 p.p.m.
Toxaphene	7 p.p.m.

Rutabagas (with or without tops) or rutabaga tops. For tolerances established for pesticide residues on rutabagas, see "Turnips and rutabagas."

(50) Salsify.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Malathion	8 p.p.m.
Zineb	7 p.p.m.

Salsify root.

Pesticide	*Tolerance*
Dieldrin	0.1 p.p.m.

Salsify tops.

Pesticide	*Tolerance*
Dieldrin	0.25 p.p.m.

(51) Spinach.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Benezene hexachloride	5 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
DDT	7 p.p.m.
1,1-Dichloro-2,2-bis (p-ethylphenyl) ethane	15 p.p.m.
Dieldrin	0.25 p.p.m.

EPN	3 p.p.m.
Ferbam	7 p.p.m.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Maneb	7 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	1 p.p.m.
Methoxychlor	14 p.p.m.
Monuron	1 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Zineb	25 p.p.m.
Ziram	7 p.p.m.

(52) Squash (summer and winter squash).

Pesticide	*Tolerance*
Benzene hexachloride	5 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Captan	20 p.p.m.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Maneb	7 p.p.m.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

Summer squash.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Dieldrin	0.25 p.p.m.
Endrin	Zero.
Ethylene dibromide (soil treatment)	50 p.p.m. of inorganic bromide calculated as Br.

Winter squash.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Dieldrin	Zero.

ANNEX F—Continued

Zucchini squash.

Pesticide	*Tolerance*
Ethylene dibromide (USDA Quarantine Program)	10 p.p.m. of inorganic bromide calculated as Br.

(53) Sweet potatoes. Tolerances are not needed for those pesticides applied only to foliage of sweet potatoes and which are not translocated to the tubers.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Chlordane	0.3 p.p.m.
DDT (post-harvest use)	7 p.p.m.
Dieldrin	0.1 p.p.m.
Ethylene dibromide (soil treatment)	50 p.p.m. of inorganic bromide calculated as Br.
Heptachlor	0.1 p.p.m.
Methyl bromide (post-harvest fumigation)	75 p.p.m. of inorganic bromide calculated as Br.

(54) Swiss chard.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Benzene hexachloride	5 p.p.m.
DDT	7 p.p.m.
Dieldrin	0.25 p.p.m.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Zineb	25 p.p.m.

(55) Tomatoes.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Allethrin (post-harvest use)	4 p.p.m.
Benzene hexachloride	5 p.p.m.
2-(*p-tert*-butylphenoxy)-isopropyl-2-chloroethyl sulfite	1 p.p.m.
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Captan	20 p.p.m.
Chlordane	0.3 p.p.m.
Copper arsenate	3.5 p.p.m. of combined As_2O_3.
Dichlone	3 p.p.m.
2,4-dichloro-6-(*o*-chloroanilino) triazine	10 p.p.m.

DDT	7 p.p.m.
Dieldrin	0.1 p.p.m.
O,O-diethyl *O*-(2-isopropyl-4-methyl-6-pyrimidinyl) phosphorothioate	0.75 p.p.m.
Endrin	Zero.
EPN	3 p.p.m.
Ethylene dibromide (soil treatment)	50 p.p.m. of inorganic bromide calculated as Br.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined fluorine.
Heptachlor	0.1 p.p.m.
Lead arsenate	7 p.p.m. of combined lead.
Lindane	10 p.p.m.
Malathion	8 p.p.m.
Maneb	7 p.p.m.
1-mthoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	0.25 p.p.m.
Methoxychlor	14 p.p.m.
Methyl bromide (post-harvest fumigation)	20 p.p.m. of inorganic bromide calculated as Br.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.
TDE	7 p.p.m.
Thiram	7 p.p.m.
Toxaphene	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

(56) Turnips or rutagas (with or without tops) or turnip greens or rutabaga tops.

Pesticide	*Tolerance*
Calcium arsenate	3.5 p.p.m. of combined As_2O_3.
Chlordane	0.3 p.p.m.
DDT	7 p.p.m.
EPN	3 p.p.m.
Ferbam	7 p.p.m.
Fluorine compounds	7 p.p.m. of combined As_2O_3.
Methoxychlor	14 p.p.m.
Nicotine-containing compounds	2 p.p.m. of nicotine.
Parathion	1 p.p.m.
TDE	7 p.p.m.
Zineb	7 p.p.m.
Ziram	7 p.p.m.

ANNEX F—Continued

Turnips with tops.

Pesticide	*Tolerance*
Heptachlor	0.1 p.p.m.
Malathion	8 p.p.m.

Rutabagas.

Pesticide	*Tolerance*
Toxaphene	7 p.p.m.

Rutabagas (yellow turnips) without tops.

Pesticide	*Tolerance*
Heptachlor	0.1 p.p.m.
Malathion	8 p.p.m.

Turnips and Rutabagas.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Dieldrin	0.25 p.p.m.
Methyl bromide (post-harvest fumigation)	30 p.p.m. of inorganic bromide calculated as Br.

Turnip tops.

Pesticide	*Tolerance*
Aldrin	0.25 p.p.m.
Dieldrin	0.25 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	1 p.p.m.

Turnips.

Pesticide	*Tolerance*
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	0.25 p.p.m.

GRAIN CROPS.

(57) Barley.

Pesticide	*Tolerance*
Allethrin (post-harvest use)	2 p.p.m.
Calcium cyanide (post-harvest use)	25 p.p.m.
Ethylene dibromide (post-harvest fumigant)	50 p.p.m. of inorganic bromide calculated as Br.
Heptachlor	0.1 p.p.m.
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.
Malathion	8 p.p.m.
Methoxychlor (storage bin treatment)	2 p.p.m.
Methyl bromide (post-harvest fumigation)	50 p.p.m. of inorganic bromide calculated as Br.

Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest application)	20 p.p.m.
Pyrethrins (post-harvest application)	3 p.p.m.
Toxaphene	5 p.p.m.

(58) Buckwheat.

Pesticide	*Tolerance*
Calcium cyanide (post-harvest use)	25 p.p.m.
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.
Piperonyl butoxide (post-harvest application)	20 p.p.m.
Pyrethrins (post-harvest application)	3 p.p.m.

(59) Corn grain (including popcorn).

Pesticide	*Tolerance*
Aldrin	Zero.
Dieldrin	Zero.
Ethylene dibromide (post-harvest fumigation)	50 p.p.m. of inorganic bromide calculated as Br.
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	0.25 p.p.m.
Piperonyl butoxide (post-harvest use)	20 p.p.m.
Pyrethrins (post-harvest application)	3 p.p.m.

Corn grain (excluding popcorn).

Pesticide	*Tolerance*
Allethrin (post-harvest use)	2 p.p.m.
Calcium cyanide (post-harvest use)	25 p.p.m.
Heptachlor	0.1 p.p.m.
Malathion (post-harvest application)	8 p.p.m.
Methoxychlor (storage bin treatment)	2 p.p.m.
Methyl bromide (post-harvest fumigation)	50 p.p.m. of inorganic bromide calculated as Br.
Mineral oil (post-harvest application)	200 p.p.m.

Field corn.

Pesticide	*Tolerance*
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	0.25 p.p.m.

(60) Oats.

Pesticide	*Tolerance*
Allethrin (post-harvest use)	2 p.p.m.
Calcium cyanide (post-harvest use)	25 p.p.m.
Ethylene dibromide (post-harvest fumigant)	50 p.p.m. of inorganic bromide calculated as Br.
Heptachlor	0.1 p.p.m.
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.

ANNEX F—Continued

Malathion	8 p.p.m.
Methoxychlor (storage bin treatment)	2 p.p.m.
Methyl bromide (post-harvest fumigation)	50 p.p.m. of inorganic bromide calculated as Br.
Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.
Toxaphene	5 p.p.m.

(61) Rice.

Pesticide	*Tolerance*
Calcium cyanide (post-harvest use)	25 p.p.m.
Ethylene dibromide (post-harvest fumigant)	50 p.p.m. of inorganic bromide calculated as Br.
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.
Malathion	8 p.p.m.
Methoxychlor (storage bin treatment)	2 p.p.m.
Methyl bromide (post-harvest fumigation)	50 p.p.m. of inorganic bromide calculated as Br.
Piperonyl butoxide (post-harvest application)	20 p.p.m.
Pyrethrins (post-harvest application)	3 p.p.m.
Toxaphene	5 p.p.m.

(62) Rye.

Pesticide	*Tolerance*
Allethrin (post-harvest use)	2 p.p.m.
Calcium cyanide (post-harvest use)	25 p.p.m.
Ethylene dibromide (post-harvest fumigant)	50 p.p.m. of inorganic bromide calculated as Br.
Heptachlor	0.1 p.p.m.
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.
Malathion	8 p.p.m.
Methoxychlor (storage bin treatment)	2 p.p.m.
Methyl bromide (post-harvest fumigation)	50 p.p.m. of inorganic bromide calculated as Br.
Piperonyl butoxide (post-harvest application)	20 p.p.m.
Pyrethrins (post-harvest application)	3 p.p.m.
Toxaphene	5 p.p.m.

(63) Wheat.

Pesticide	*Tolerance*
Allethrin (post-harvest use)	2 p.p.m.
Calcium cyanide (post-harvest use)	25 p.p.m.
Ethylene dibromide (post-harvest fumigant)	50 p.p.m. of inorganic bromide calculated as Br.

Heptachlor	0.1 p.p.m.
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.
Malathion	8 p.p.m.
Methoxychlor (storage bin treatment)	2 p.p.m.
Methyl bromide (post-harvest fumigation)	50 p.p.m. of inorganic bromide calculated as Br.
Parathion	1 p.p.m.
Piperonyl butoxide (post-harvest application)	20 p.p.m.
Pyrethrins (post-harvest application)	3 p.p.m.
Toxaphene	5 p.p.m.
Zineb	1 p.p.m.

(64) Oat grain, barley grain, rice grain, rye grain, wheat grain.

Pesticide	*Tolerance*
Aldrin	0.1 p.p.m.
Dieldrin	0.1 p.p.m.
Malathion (post-harvest application)	8 p.p.m.

(65) Sorghum grain.

Pesticide	*Tolerance*
Calcium cyanide (post-harvest use)	25 p.p.m.
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.
1-methoxycarbonyl-1-propen-2-yi-dimethylphosphate & its beta isomer	1 p.p.m.
Methoxychlor (storage bin treatment)	2 p.p.m.
Malathion (post-harvest application)	8 p.p.m.

(66) Grain sorghum (Milo).

Pesticide	*Tolerance*
Allethrin (post-harvest use)	2 p.p.m.
Ethylene dibromide (post-harvest fumigant)	50 p.p.m. of inorganic bromide calculated as Br.
Heptachlor	0.1 p.p.m.
Methyl bromide (post-harvest fumigation)	50 p.p.m. of inorganic bromide calculated as Br.

(67) Grain sorghum.

Pesticide	*Tolerance*
Aldrin	Zero.
Dieldrin	Zero.
Mineral oil (post-harvest application)	200 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.

HAY AND FORAGE CROPS.

(68) Alfalfa.

Pesticide	*Tolerance*
Aldrin	Zero.
2-(*p-tert*-butylphenoxy)-isopropyl-2-chloroethyl sulfite	Zero.

ANNEX F—Continued

Demeton	5 p.p.m.
Dieldrin	Zero.
Diuron	2 p.p.m.
Heptachlor	0.1 p.p.m.
Malathion	8 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	1 p.p.m.
Methoxychlor	100 p.p.m.
Parathion	1 p.p.m.

(69) Alfalfa hay.

Pesticide	*Tolerance*
Demeton	12 p.p.m.
Methyl bromide (post-harvest fumigation)	50 p.p.m. of inorganic bromide calculated as Br.

(70) Clover (including sweet clover).

Pesticide	*Tolerance*
Aldrin	Zero.
Demeton	5 p.p.m.
Dieldrin	Zero.
Heptachlor	0.1 p.p.m.
Malathion	8 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	1 p.p.m.
Methoxychlor	100 p.p.m.
Parathion	1 p.p.m.

Clover hay.

Pesticide	*Tolerance*
Demeton	12 p.p.m.

Birdsfoot trefoil (hay, forage).

Pesticide	*Tolerance*
Diuron	2 p.p.m.

(71) Cowpea hay.

Pesticide	*Tolerance*
Aldrin	Zero.
Dieldrin	Zero.

(72) Corn forage.

Pesticide	*Tolerance*
Aldrin	Zero.
Dieldrin	Zero.
Malathion	8 p.p.m.
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	1 p.p.m.
Parathion	1 p.p.m.

Sweet corn forage.

Pesticide	*Tolerance*
Ethylene dibromide (soil treatment)	50 p.p.m. of inorganic bromide calculated as Br.

(73) Grass and grass hay.
Grass, pasture and range.

Pesticide	*Tolerance*
Heptachlor	0.1 p.p.m.

Grass for forage.

Pesticide	*Tolerance*
Methoxychlor	100 p.p.m.
Parathion	1 p.p.m.

Grass crops (grass hay).

Pesticide	*Tolerance*
Diuron	2 p.p.m.

(74) Grain sorghum forage.

Pesticide	*Tolerance*
Aldrin	Zero.
Dieldrin	Zero.

Sorghum forage.

Pesticide	*Tolerance*
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	1 p.p.m.

(75) Lespedeza.

Pesticide	*Tolerance*
Aldrin	Zero.
Dieldrin	Zero.

(76) Oat straw, rice straw, barley straw, rye straw, wheat straw.

Pesticide	*Tolerance*
Aldrin	0.75 p.p.m.
Dieldrin	0.75 p.p.m.

(77) Pea forage.

Pesticide	*Tolerance*
Parathion	1 p.p.m.

Pea vines.

Pesticide	*Tolerance*
1-methoxycarbonyl-1-propen-2-yl-dimethylphosphate & its beta isomer	1 p.p.m.

(78) Pea hay.

Pesticide	*Tolerance*
Aldrin	Zero.
Dieldrin	Zero.

ANNEX F—Continued

(79) Peanut forage.

Pesticide	*Tolerance*
Methoxychlor	100 p.p.m.

(80) Peanut hulls and hay.

Pesticide	*Tolerance*
Sesone	6 p.p.m.

(81) Peanut hay.

Pesticide	*Tolerance*
Aldrin	Zero.

(82) Soybean forage.

Pesticide	*Tolerance*
2-(*p-tert*-butylphenoxy)-isopropyl-2-chloroethyl sulfite	Zero.
Methoxychlor	100 p.p.m.

(83) Soybean hay.

Pesticide	*Tolerance*
Aldrin	Zero.
Dieldrin	Zero.

(84) Vetch.

Pesticide	*Tolerance*
Parathion	1 p.p.m.

(85) Tree nuts.

Almonds.

Pesticide	*Tolerance*
Demeton	0.75 p.p.m.
EPN	0.5 p.p.m.
Ferbam	0.1 p.p.m.
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.
Maneb	0.1 p.p.m.
Methyl bromide (post-harvest fumigation)	200 p.p.m. of inorganic bromide calculated as Br.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.
Ziram	0.1 p.p.m.

Almond hulls.

Pesticide	*Tolerance*
Demeton	5 p.p.m.

Brazil nuts.

Pesticide	*Tolerance*
Methyl bromide (post-harvest fumigation)	200 p.p.m. of inorganic bromide calculated as Br.

Bush nuts.

Pesticide	*Tolerance*
Methyl bromide (post-harvest fumigation)	200 p.p.m. of inorganic bromide calculated as Br.

Butternuts.

Pesticide	*Tolerance*
Methyl bromide (post-harvest fumigation)	200 p.p.m. of inorganic bromide calculated as Br.

Cashews.

Pesticide	*Tolerance*
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.
Methyl bromide (post-harvest fumigation)	200 p.p.m. of inorganic bromide calculated as Br.

Chestnuts.

Pesticide	*Tolerance*
Methyl bromide (post-harvest fumigation)	200 p.p.m. of inorganic bromide calculated as Br.

Hazel nuts.

Pesticide	*Tolerance*
Methyl bromide (post-harvest fumigation)	200 p.p.m. of inorganic bromide calculated as Br.
Toxaphene	7 p.p.m.

Hickory nuts.

Pesticide	*Tolerance*
Methyl bromide (post-harvest fumigation)	200 p.p.m. of inorganic bromide calculated as Br.
Toxaphene	7 p.p.m.

Litchi nuts.

Pesticide	*Tolerance*
Ethylene dibromide (USDA Quarantine Program)	10 p.p.m. of inorganic bromide calculated as Br.

Pecans.

Pesticide	*Tolerance*
Demeton	0.75 p.p.m.
EPN	0.5 p.p.m.
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.
Malathion	8 p.p.m.
Methyl bromide (post-harvest fumigation)	200 p.p.m. of inorganic bromide calculated as Br.
Toxaphene	7 p.p.m.
Ziram	0.1 p.p.m.

ANNEX F—Continued

Pistachio nuts.

Pesticide	*Tolerance*
Methyl bromide (post-harvest fumigation)	200 p.p.m. of inorganic bromide calculated as Br.

Walnuts.

Pesticide	*Tolerance*
Demeton	0.75 p.p.m.
EPN	0.5 p.p.m.
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.
Malathion	8 p.p.m.
Methyl bromide (post-harvest fumigation)	200 p.p.m. of inorganic bromide calculated as Br.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.
Toxaphene	7 p.p.m.

(86) Meat and poultry.

Fat of meat from cattle, sheep or hogs.

Pesticide	*Tolerance*
DDT	7 p.p.m.
Methoxychlor	3 p.p.m.

Fat of meat from cattle, goats and sheep.

Pesticide	*Tolerance*
Toxaphene	7 p.p.m.

Meat and meat by-products from cattle, hogs, poultry.

Pesticide	*Tolerance*
Malathion	4 p.p.m.

Poultry (uncooked).

Pesticide	*Tolerance*
Chlortetracycline	7 p.p.m.
Oxytetracycline	7 p.p.m.

(87) Milk.

Pesticide	*Tolerance*
Malathion	Zero.
Methoxychlor	Zero.

(88) Eggs.

Pesticide	*Tolerance*
Malathion	Zero.

(89) Other raw agricultural commodities.

Cavandish bananas.

Pesticide	*Tolerance*
Ethylene dibromide (USDA Quarantine Program)	10 p.p.m. of inorganic bromide calculated as Br.

Cocoa beans.

Pesticide	*Tolerance*
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.
Methyl bromide (post-harvest fumigation)	50 p.p.m. of inorganic bromide calculated as Br.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.

Copra.

Pesticide	*Tolerance*
Ethylene oxide (post-harvest fumigation)	50 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.

Cotton.

Pesticide	*Tolerance*
Heptachlor	0.1 p.p.m.

Cotton seed.

Pesticide	*Tolerance*
Dalapon	35 p.p.m. as 2,2-dichloropropionic acid.
O,O-dimethyl *S*-(4-*oxo*-1, 2, 3-benzotriazinyl-3-methyl) phosphorodithioate	0.5 p.p.m.
Diuron	1 p.p.m.
Endrin	Zero.
EPN	0.5 p.p.m.
Ethylene dibromide (soil treatment)	25 p.p.m. of inorganic bromide calculated as Br.
Malathion	2 p.p.m.
Methyl bromide (post-harvest fumigation)	200 p.p.m. of inorganic bromide calculated as Br.
Monuron	1 p.p.m.
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.

Dandelions.

Pesticide	*Tolerance*
Malathion	8 p.p.m.

Flaxseed.

Pesticide	*Tolerance*
Piperonyl butoxide (post-harvest use)	8 p.p.m.
Pyrethrins (post-harvest use)	1 p.p.m.

ANNEX F—Continued

Hops.

Pesticide	*Tolerance*
Demeton	1.25 p.p.m.
Parathion	1 p.p.m.
Zineb	60 p.p.m.

Olives.

Pesticide	*Tolerance*
EPN	3 p.p.m.
Parathion	1 p.p.m.

Peppermint.

Pesticide	*Tolerance*
Malathion	8 p.p.m.

Sesame.

Pesticide	*Tolerance*
Hydrogen cyanide (post-harvest fumigation)	25 p.p.m.

Spearmint.

Pesticide	*Tolerance*
Malathion	8 p.p.m.

Soy beans.

Pesticide	*Tolerance*
Aldrin	Zero.
Dieldrin	Zero.

Sugarcane.

Pesticide	*Tolerance*
Diuron	1 p.p.m.
Heptachlor	0.1 p.p.m.
Monuron	1 p.p.m.

Watercress.

Pesticide	*Tolerance*
Malathion	8 p.p.m.

Whole spices.

Pesticide	*Tolerance*
Ethylene oxide (post-harvest fumigation)	50 p.p.m.

Whole spices (specified).

Allspice, anise, basil, bay, black pepper, caraway, cassia, celery seed, chili, cinnamon, cloves, coriander, cumin, dill, ginger, mace, marjoram, nutmeg, oregano, paprika, poppy, red pepper, rosemary, sage, savory, thyme, tumeric, white pepper.

Pesticide	*Tolerance*
Hydrogen cyanide (post-harvest fumigation)	250 p.p.m.

Who Will Be First?

By ALBERT H. HOLLAND, JR., M. D.

Addressing The Proprietary Association's 1958 Meeting, at White Sulphur Springs, West Virginia, May 12, Dr. Holland Indicated That Most of the Problems of the Proprietary Industry Devolve from Its Relationships with Its "Relatives"

MR. CHAIRMAN, MEMBERS and Guests of The Proprietary Association, Ladies and Gentlemen:

It is my privilege to join with you in this, the Seventy-seventh Annual Meeting of The Proprietary Association. I would be less than truthful if I did not indicate my pleasure in being invited to participate in your program. When I met with your executive vice president and the chairman of your business program committee, they suggested the desirability of my attempting to present an objective analysis, as I see it, of some of the problems confronting the proprietary industry. In short, I was invited to lay it on the line—not passively, but with incisiveness; not gently, but with vigor! I am now keenly aware of the value of Congressional immunity. Likewise, it is no secret to me, nor will it be to you, that this assignment is in large measure beyond my ken. True to the mantle of bureaucracy which I currently bear, however, I shall now unhesitatingly embark on a seemingly learned discussion of what's wrong with you—but not with me. You see, this approach makes life much more palatable—for me—and permits the exercise of traditional bureaucratic clairvoyance.

To be serious, however, if not clairvoyant, one cannot long reflect on the problems of the proprietary industry without reaching the conclusion that many other groups are also involved with you in these problems. While I do not mean to oversimplify, it appears evident that many, if not most, of the problems devolve from your relationships with your relatives. Yes, you do have relatives—relatives on the health team, just as you are in turn a relative. Some of your relatives

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are the wholesaler, the pharmacist, the physician, and the manufacturer of prescription drugs. To disclaim the basic bonds which exist between you is to be shortsighted, and contributes only to destructive rather than constructive attitudes and actions. To illustrate—I honestly believe there is not a person in this room today who, if seriously ill, would not immediately seek the services of a physician, gratefully accept his prescription for medication made by a manufacturer of prescription drugs and then proceed with all due haste to have the prescription filled by a pharmacist. If there are individuals here who would refute this thesis, I can only comment that I consider it amazing, if not amusing, to find them in the drug business. But to go back for a moment, your patronage—in fact, your need for the professional services in the chain of events described—is in itself recognition of the various members of the health team. It is indeed recognition of your dependence on them, just as they in turn are dependent on you. Since man is fundamentally a dependent but gregarious animal, does it not seem both prudent and logical to strive for relationships which will permit progress, peace and profits?

Granted, you are confronted with a myriad of important business problems such as price structure, discounts, inventory, and others. Today I wish to confine my remarks, however, to those which relate to your relatives and your relationships with them. I sense, and in fact I know, that while business is good, nevertheless you do have serious and continuing difficulties. Herein lies a great opportunity for the proprietary manufacturers and The Proprietary Association. You now have the opportunity to exert some leadership. It will cost money. It may well be hard, but it must be done if you are to build soundly for the future. Someone must take the lead. Who will be first?

Every family, group or association contains senior citizens—leaders, if you will. Why not commission your leaders to lead? If yours don't, others will and perhaps in directions less favorable than those you now reject. Here is opportunity. Here is a chance to demonstrate your sense of responsibility, the character of your association and your sincere interest in the mutual welfare of all members of the health team.

Man is by nature a gregarious animal. From the early dawn of his history he banded together, first in the family, then in groups or tribes. As the tribes increased in size, they often subdivided into smaller clans which, while espousing their primary tribal allegiance, nevertheless set about their own way, sometimes to the detriment of the other members of the group. There is suggestive evidence, it seems to me, that we are witnessing a similar phenomenon among members of the health team. If the team concept has any basis in fact, then it must be said that the health team or tribe now also has clans. It is now for you to decide whether you shall make efforts to reunite and build or to further defect and destroy. Living together and building together imposes obligations not all of which are completely happy or entirely pleasant. Defection is born of selfishness, when actually what is needed is wisdom, tolerance and understanding. Who will take the lead? Who can lead? Who will be first—The Proprietary Association or some other group?

Let me be somewhat specific. Take, for example, your relationships with doctors. Immediately, many of you are probably saying to yourselves: We don't sell to doctors, we sell to the public. If this is true and this is the general operating philosophy of the proprietary industry, then I say to you: You are missing the boat. Here is a professional group whose help you should have; I dare say, need! Doctors still influence a large share of drug sales throughout the country, yet only a handful of your products are made available to physicians. How many proprietaries do you advertise directly to the physician for his professional use? How much good, sound educational information —valuable to him and to you—do you put at his professional disposal? The law does provide that you can send information directly to the physician within professional channels that otherwise cannot appear in labeling or advertising, yet few of you do.

Perhaps the critical question to be posed is: How many proprietary products are actually supported by good, sound scientific data?

It might well be revealing to the truly courageous to inquire of your scientific directors for lists of all of the medical publications on each individual product that they would recommend for a general mailing to the medical profession. If you are satisfied with their reports and recommendations to you, then I urge that you capitalize on some of these untapped assets. If such is not the case, however, I urge with equal vigor that you set about establishing the requisite studies so that you are in a position aggressively to approach the physician on the basis of facts rather than dwelling only on capturing the public fancy.

Supporting Adequate Research

There are still too many proprietary products not acceptable for advertising in first-rate medical journals. There are far too few good papers on proprietaries published in the medical literature. I earnestly believe your efforts will be well spent and well rewarded if you support work which can lead to the publication of good scientific papers as opposed to the all-too-common "cookbook" paper for promotional purposes only. Shortsighted research is shortsighted business.

Some of you do depend on doctors to run your clinical tests. I know this for a fact; I saw it on television. Yet I question how much heed some pay to the oft-expressed ethical principle that physicians should not be portrayed in promotional pitches on the screen. Oh, but, you say, there are only 150,000 or so practicing physicians and they're really not our customers anyway. Let me point out that these 150,000 individuals are in a position to influence many millions of people who are your customers. By ignoring good taste and the wishes of the medical profession, you are courting trouble, in my opinion. By such actions you are unwittingly stimulating the development and sale for so-called over-the-counter ethicals. You are directly creating a market for your major competitor, and you have the doctors' help, but on your competitors' side. The greatest threat to the proprietary market today, in my judgment, comes not from organized pharmacy, but rather from the entrance of prescription drug manufacturers into the nonprescription market. Similarly, I believe that the greatest threat to pharmacy comes not from the sale of proprietaries in nondrug outlets, but rather from the fact that their battle may be lost because they fail to distinguish the forest from the trees. Preoccupation with attempting to keep proprietaries in the drugstore precludes the devotion of their attention to the constructive long-range effort necessary

to retain the over-the-counter ethicals in the pharmacy. I may well be wrong; I pose not as a prophet, but I do express these opinions sincerely and frankly.

Issue of Restrictive Sales

Now what about your relationships with pharmacy? Certainly, there are many in this audience who, with greater knowledge and more experience than I, are entitled to speak with more authority. Yet I cannot escape the unhappy observation that as one peruses the reports of your annual meetings, the subject of restrictive sales has been presented again and again. Several efforts have been made over the years to find a reasonably satisfactory solution, but the fact of the matter is that none has been forthcoming. It does not appear to me that this problem will remain in *status quo*. Sooner or later the pattern will change, perhaps in your favor, perhaps not. There seems little reason to rejoice about favorable court decisions state by state. Perhaps this is the only way to resolve the issue, but I am just enough of an agnostic to doubt it. There is, as I am sure you've been counseled, the distinct possibility of losing some of these legislative skirmishes and judicial decisions despite excellent legal advice. What then? Are you willing to accept defeat with good grace? Are you happy about the prospects of a variety of marketing patterns on a state-by-state basis? As I see it, the proprietary manufacturers and pharmacy are now in a cold war, with hot skirmishes flaring up all the time. The atmosphere is neither pleasant nor conducive to progress. This is not and should not be an East v. West controversy, yet one wonders what real chance there is for satisfactory settlement of major international problems when we are not even able to resolve our own internecine problems among members of the health team.

Sincerely, I believe that the issue of restrictive sales can be solved. It is not a food and drug problem under the Federal Food, Drug, and Cosmetic Act. It is strictly an economic problem, but this makes its eventual resolution no less important. Its solution can be accomplished. It may be costly, it may be time-consuming and it may never be a completely satisfying result, but a workable answer must be achieved if peace is to be attained for the benefit of all parties.

Perhaps here I may make a suggestion for your consideration. You are admittedly confronted with a serious problem of your relationships with pharmacy. They need, as do pharmacies, shoring up for the present and building up for the long future ahead. Why not,

then, have this association undertake the support of some basic study or studies in the psychology of conflict? Much is already known about this subject, some of which I suspect is directly applicable to this problem. As the study progresses, it could well provide answers and contributions whose usefulness would extend far into the future. It might indeed be advantageous to explore the possibility of pharmacy's participation in the study and perhaps even of joint support.

Labeling and Advertising

There are other areas where this association and its members can make important contributions not only to your own relationships with pharmacy, but to the public health and welfare. You recall, I'm sure, the pilot survey conducted by the American College of Apothecaries concerning the consumer's reactions to label information. While, admittedly, this was only a pilot study and, therefore, lacks the validity of a larger-scale effort, I do feel that it deserves your serious consideration on at least two grounds. First, should it not be extended, perhaps as a joint study supported by both groups? Perhaps in the light of experience and expert knowledge in survey work, some questions may need some recasting, but should this not be done? Second, if the trends manifested by the pilot study are in fact valid in the opinion of experts, then does it not emphasize the necessity for a sustained intensive educational program conducted by this association for the benefit of the public health as well as for your own health? Adequate and informative labeling is a legal requirement under the Federal Food, Drug, and Cosmetic Act. If current labeling is not serving this purpose to the consumer, then clearly it needs early revision. I submit that careful evaluation of the implications of this study merit your study and deliberation. It may be that I have overemphasized the importance of this problem. Somehow I don't share that view. It would seem that the issue should be settled even if imperfectly. Maybe time alone will permit an answer, but I doubt it. Leadership is needed. Who will be first—The Proprietary Association?

Now may I turn to two related subjects familiar to you all—labeling and advertising? Both are essential to the proprietary business; both are important. But let's stop and critically examine the situation not just for the sake of being critical, but rather really to assess the present and plan constructively for the future.

Advertising, as you know, is primarily under the jurisdiction of the Federal Trade Commission, and labeling is subject to the Federal

Food, Drug, and Cosmetic Act. It seems to me that the pure threats of present-day competition are leading to some undesirable promotional practices. One might guess that you may well be approaching the point of diminishing returns. In the first place, some presentations are so extravagant and exaggerated that I honestly believe that the public's reaction is to snicker or to laugh at the ridiculousness of them. In the second place, some manufacturers are resorting to the use of copy which brings them closer and closer to legal trouble. I am well aware of the "oops, oops, I'm sorry" technique, but I wonder if it is a sound or ethical basis on which to build the reputation of your products or your firms. If it is—which I doubt—I wonder how many of your firms would be willing, for example, to declare this as their operating policy and so state in their annual stockholders' report.

Within the past nine years, there have been at least three food and drug cases in which the courts have ruled that advertising employed by the defendants was merely an extension of labeling. This I believe should give pause for concern and the exercise of caution. Experience has amply demonstrated that good products do not require excessive or abusive advertising. Why not concentrate on good products rather than poor advertising. Would it not be better business?

Suggestions for Improvement

What, then, is to be done about advertising? With a genuine self-interest for you in the problem, there would appear to be many things possible and perhaps desirable. Why not establish within your association an advertising committee whose functions might be several? For example, either the committee itself or its staff and consultants might review all radio and TV copy. It could aid the over-all objectives of The Proprietary Association by making its services available for the review of all newspaper copy and even of trade press releases. It seems not too unthinkable that you might adopt an association seal which could be used on and in all advertising copy reviewed and approved by your committee. Again, in your own self-interest, and as a worth-while public service, the committee and its staff could review independently copy not submitted for review and copy from nonmember firms. When found to be offensive, inappropriate, or otherwise not in the public interest, I see no reason why the committee in the name of the association could not so advise the company. The day is fast passing when The Proprietary Association can confine its interest solely to its member firms. Your attentions

must also be directed to industry-wide practices and, in particular, those that may have detrimental effects. Your problem in this regard is identical to that shared by the prescription industry, pharmacy and the medical profession itself. It is simply this: how to control the wayward, the unthinking or the irresponsible minority whose actions and practices reflect on all. While legal enforcement is not your business, certainly the association could exert a great moral force which would clearly benefit your membership but, more important, the public at large. These steps would require some boldness. These steps might well lead to some subsequent programs such as institutional advertising in the name of The Proprietary Association. Such may well be indicated if you are to undertake public education programs with vigor.

Tribute to Contributions by Industry Members

Now, lest you think that I am insensitive or completely unknowing, let me pay personal tribute to the many contributions that members of the proprietary industry have made over the years. Let me also pay tribute to the great progress that your association has made, particularly in the last three decades. Dr. Fred Cullen is a man of high principles who provided this association with great leadership. He was, and is, a man who is willing to be first. Howard Prentice, his successor, is also an individual unafraid to stand for what he believes in. It is this kind of leadership that is essential and must be fostered if your association is to continue to progress.

Yes, you have problems; who doesn't? Yes, you must meet them, for if you don't—if you fail to fulfill your obligations and responsibilities—society will impose the necessary measures to remedy abuses. This need never happen if The Proprietary Association and its members are willing to be first.

Now, in closing, let me say that I have not intended to be unduly harsh in repayment for your kind hospitality. Likewise, I trust that these remarks are not relegated to your archives, or even some less desirable repository, on the basis of being the impractical, unrealistic or idealistic ranting of another government bureaucrat. They were delivered in the same spirit in which they were requested of me. Your relatives and relationships—they are vitally important. Someone on the health team must soon step up to bat and hit the ball. Who will be first? **[The End]**

The Scientists' Forum

Edited by BERNARD L. OSER

Director, Food and Drug Research Laboratories, Inc.

Editor's Comment: The following is a statement released during July by the Food Protection Committee, Food and Nutrition Board, National Academy of Sciences, National Research Council.

Insignificant Levels of Chemical Additives in Food

Chemicals are used in various phases of food production and technology. Those that occur in the food as the result of such use are termed "chemical additives." The regulation, in the interest of public health, of the extent of occurrence of these chemicals in food is based in part on the established toxicologic principle that there is a "safe" level of intake for any chemical. An additional principle, which has not been generally recognized or, in fact, stated, enters into such regulation. This principle permits the ignoring of the presence of known, finite quantities of chemicals in food as though there were none present. There has been some tendency to use the term "zero" to include such finite, though ignorable, amounts. It seems preferable to recognize that these amounts are finite but that they are insignificant or inconsequential insofar as public health is concerned. The following is an attempt to develop this concept and state it formally.

The effects of chemicals are generally related to the quantities that enter the body, whether single or repeated doses are administered. A typical dosage-response relationship as progressively smaller quantities are administered is: (1) rapid death, with few or no characteristic pathologic effects; (2) delayed death or survival with marked characteristic effects of the compound; (3) slight injurious effect; (4) no discernible effect.

Occasionally, a seemingly beneficial effect may occur at even lower levels.

All compounds that have been studied display changes in degree and nature of effect as decreasing amounts are administered to animals. All pharmacologic actions are reduced by decreasing the intake.

Whenever dosage-response curves have been plotted, they have indicated that the discernible response reaches zero while the dosage is still finite.

From the public-health point of view, it is fortunate that this is true, because even unprocessed foodstuffs and drinking waters may contain traces of many substances which would be harmful in large amounts. For example, studies by sensitive analytical methods have revealed the presence of many metallic compounds in unprocessed food and water at levels of parts per million. Furthermore, food cannot be produced without the presence of a wide variety of materials resulting from decomposition; the action of micro-organisms, insects, and other pests; and contact with tools and containers used in production and processing—whether industrial or domestic. These materials can be reduced in amount by increased care to prevent contamination, but they cannot be avoided entirely. In fact, to prepare foodstuffs sufficiently free of these materials to be suitable for use in experimental diets for critical nutritional studies is a major undertaking. Unless present in excessive amounts, incidental contaminants are accepted by both the pharmacologist and public-health official as inconsequential in relation to public health.

For every compound there is a level of intake below which there is no discernible effect upon health. In toxicologic testing, a level of intake of a compound having no demonstrable effect upon at least two species of animals when fed over a long period is generally referred to as a "no-effect level." Extrapolation from the "no-effect level" in animals has been successful in defining a level of intake which has a negligible probability of injuring any individual in the population. This level is commonly referred to as the "safe level" for use by man. Even though it is based on the best available quantitative biological information, the establishment of "safe level" is a subjective mental operation. This operation takes into account the experimental data, particularly the nature of the injury from an excess and the variation of injury with variation of intake. Further, it interprets the significance of doubtful observations and allows for the variability of species and individuals. Last, it applies a margin of safety to compensate for factors which cannot be accurately evaluated. The subjective nature of the judgment upon which the "safe level" is based inevitably con-

fers some small uncertainty to the estimate. Thus, it is appropriate that regulatory safeguards be applied to prevent more than the "safe level" from reaching the diet.

The use of chemicals in food technology results in the incidental presence of foreign substances in foods. When the maximum amount, either as calculated from its proposed technologic use or analytically determined, of such a substance is sufficiently below the "safe level," the probability that injury will result from its presence approaches zero. Such a level, which can only be evaluated by a qualified expert, is certainly within the zone of toxicologic inconsequence.

To define exactly the upper limit of the "zone of inconsequence" or insignificant level of any material would require experiments using infinitely sensitive criteria of functional effect. No such criteria exist. Experiments can demonstrate the absence of effects of some particular recognized magnitude; they cannot demonstrate the absence of any effect at all. However, if adequate toxicologic data exist, those qualified by training and experience can judge whether a proposed intake is within the zone of inconsequence. If a reasonable extrapolation of the dosage-response curve shows the proposed intake to be far below the lowest intake that can be expected to produce an injurious effect, the proposed intake is within the zone of inconsequence; insofar as public health is concerned, regulatory action concerning it would be neither helpful nor necessary.

Each application of a chemical should be considered on its own merits. An arbitrarily selected fraction of the "safe dose" should not be used to define the upper limit of a zone of inconsequence for all materials; rather, due regard should be given to the severity of injury which can result from an excess and to the slope of the dosage-response curve. Judgments regarding safety should be conservative. When a proposed application results in a potential intake so close to the "safe level" of the material that it is not clearly within the zone of inconsequence, then regulatory control is indicated.

Conclusion.—It is recognized that, as the result of use of chemicals in food production and processing, substances may occur in foods in amounts so small as to be inconsequential in relation to public health. In such instances, regulatory action is not required.

CHRISTOPHER COMMENTS—Continued from page 404

the Food and Drug Administration's claim is the same as that in a prior case before the FTC, the FTC's decision is binding.[4]

Opinion as Warranty.—A Texas decision holds that the mere expression of an opinion by a wholesaler as to the value of a product in the immunization of hogs from cholera is not a warranty.[5] The plaintiff asked the wholesaler what he thought about the product, and the latter replied that (quoting plaintiff's testimony) "if I would use it like he told me to he didn't believe I would have any trouble." The plaintiff then asked the wholesaler: "Well, what would be your suggestion on it?"—to which the wholesaler replied, "Well, you give 2 ccs . . . and I don't think you will ever be bothered with any cholera."

The court rules that this testimony shows that the wholesaler was giving an opinion, not a warranty. It adds that the mere expression of an opinion as such and not as a statement of fact is not a warranty. In another recent case, the court held that a salesgirl's statement that a product was "wonderful" was only seller's talk.[6]

The problem here is to distinguish between statement of fact and of opinion. Certainly, a seller cannot always escape liability merely by using "I think" in front of his claims. Also, one should keep in mind that this case deals with a civil action for warranty, not implied warranty or negligence.

SURGEON GENERAL ANNOUNCES CONFERENCE ON STAPHYLOCOCCAL DISEASE

Dr. Leroy E. Burney, Surgeon General of the Public Health Service, announced recently that a conference on staphylococcal disease will be held at the service's Communicable Disease Center in Atlanta, Georgia, September 15-17. The conference, which was recommended by the American Hospital Association, will be attended by representatives of 40 hospital, medical, and other professional organizations.

The main purpose of the conference is to identify control measures which can be established in hospitals and communities to deal with the mounting problem of infections caused by bacteria which are resistant to penicillin and other antibiotic drugs. Agenda will be developed by a special committee.

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[4] *U. S. v. 14 Cartons . . . "AYDS Candy,"* Kleinfeld & Dunn, *Federal Food, Drug, and Cosmetic Act, 1938-1949*, p. 182 (DC Mo., 1946).

[5] *Welch Veterinary Supply Company v. Martin*, CCH Food Drug Cosmetic Law Reports ¶ 22,540 (Tex. Ct. of App., April 3, 1958).

[6] *Jacquot v. Wm. Filene's Sons Company*, CCH Food Drug Cosmetic Law Reports ¶ 22,538 (Mass., 1958).

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